

***United States Court of Appeals  
for the  
District of Columbia Circuit***



**TRANSCRIPT OF  
RECORD**



# COURT OF APPEALS OF THE DISTRICT OF COLUMBIA.

OCTOBER TERM, 1906.

No. 1728.

HENRY B. F. MACFARLAND, HENRY L. WEST, AND  
JOHN BIDDLE, COMMISSIONERS OF THE DIS-  
TRICT OF COLUMBIA, AND CHARLES H. TREAT,  
TREASURER OF THE UNITED STATES, &c., APPEL-  
LANTS,

vs.

THE BARBER ASPHALT PAVING COMPANY.

APPEAL FROM THE SUPREME COURT OF THE DISTRICT OF COLUMBIA.

## INDEX.

	Original.	Print.
Caption .....	a	1
Bill .....	1	1
Temporary restraining order.....	8	6
Affidavit of Robert M. Richards.....	10	7
Affidavit of Allerton S. Cushman.....	13	9
Answer of Commissioners, D. C.....	15	10
Affidavit of Conway B. Hunt.....	26	17
Affidavit of A. W. Dow.....	31	20
Order to U. S. Treasurer for retention of part of fund.....	35	22
Answer of defendant, Ellis H. Roberts.....	36	23
Replication .....	39	25
Supplemental bill of complainant.....	40	25
Rule to show cause.....	48	30
Answer of Commissioners, D. C. to supplemental bill.....	50	31
Memorandum: As to contracts attached to supplemental answer of Commissioners .....	56	35
Depositions on behalf of complainant— Clifford Richardson—		
Direct Examination.....	58	36
Cross Examination.....	75	47
Allerton S. Cushman—		
Direct Examination.....	103	63
Cross Examination.....	122	74
Redirect Examination.....	135	82
Robert M. Richards—		
Direct Examination.....	137	82
Cross Examination.....	183	111
Redirect Examination.....	207	125

	Original.	Print.
William H. Lober—		
Direct Examination.....	211	128
Cross Examination.....	221	134
Redirect Examination.....	235	143
Recross Examination.....	237	143
Eugene George Schwendeman—		
Direct Examination.....	238	144
Cross Examination.....	251	152
Horace M. Woodward—		
Direct Examination.....	254	154
Robert L. Middleton—		
Direct Examination.....	258	155
Cross Examination.....	266	160
Redirect Examination.....	273	164
R. M. Richards—		
Direct Examination.....	275	165
Robert L. Middleton—		
Cross Examination resumed under stipulation.....	277	166
Redirect Examination.....	291	174
List of Exhibits, &c.....	295	177
Complainants' Exhibit Contract No. 1.....	296	178
Complainants' Exhibit Contract No. 2.....	313	179
Depositions on behalf of defendants—		
Allen W. Dow—		
Direct Examination.....	349	186
Cross Examination.....	407	220
George C. Burns—		
Direct Examination.....	466	254
Howard J. Diffenbaugh—		
Direct Examination.....	470	256
Cross Examination.....	474	256
Redirect Examination.....	477	260
Edmund Saxton—		
Direct Examination.....	478	261
Cross Examination.....	481	262
Arthur D. Dunn—		
Direct Examination.....	485	265
Cross Examination.....	486	266
George C. Burns, recalled.....	489	267
Cross Examination.....	491	268
Charles E. Munroe—		
Direct Examination.....	494	270
Cross Examination.....	514	281
Redirect Examination.....	540	296
Allen W. Dow, recalled—		
Redirect Examination.....	545	299
Recross Examination.....	549	302
George C. Burns, recalled—		
Redirect Examination.....	551	303
Defendants' Documentary Exhibits—		
"Exhibit Dow No. 5".....	554	305
"Exhibit Burns No. 1".....	559	310
Charles H. Treat, Treasurer of U. S., &c., made party defendant	361	312
Adoption of answer of Ellis H. Roberts.....	562	312
Stipulation of June 6, 1906.....	563	313
Final decree and appeal to Court of Appeals by defendants....	567	315
Time extended in which to file transcript of record in Court of Appeals to and including Monday, Oct. 1, 1906.....	569	317
Directions to clerk for preparation of transcript on appeal.....	570	317
Stipulation as to exhibits on hearing of case.....	571	318
Clerk's certificate.....	572	319
Stipulation as to printing.....	573	319



In the Court of Appeals of the District of Columbia.

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No. 1728.

HENRY B. F. MACFARLAND ET AL., Appellants,  
*vs.*  
THE BARBER ASPHALT PAVING CO.

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*a* Supreme Court of the District of Columbia.  
Equity. No. 23,774.

THE BARBER ASPHALT PAVING COMPANY, Complainant,  
*vs.*

HENRY B. F. MACFARLAND, HENRY L. WEST, and JOHN BIDDLE,  
Commissioners of the District of Columbia, and ELLIS H.  
ROBERTS, Treasurer of the United States, and Ex Officio Com-  
missioner of the Sinking Fund of the District of Columbia,  
Defendants.

UNITED STATES OF AMERICA, *District of Columbia, ss:*

Be it remembered, That in the Supreme Court of the District  
of Columbia, at the city of Washington, in said District, at the  
times hereinafter mentioned, the following papers were filed  
and proceedings had, in the above-entitled cause, to-wit:

1 *Bill, &c.*

Filed February 19, 1903.

In the Supreme Court of the District of Columbia.

No. 23,774. No. 53.

THE BARBER ASPHALT PAVING COMPANY, Complainant,  
*vs.*

HENRY B. F. MACFARLAND, HENRY L. WEST, and JOHN BIDDLE,  
Commissioners of the District of Columbia, and ELLIS H.  
ROBERTS, Treasurer of the United States, and Ex Officio  
Commissioner of the Sinking Fund of the District of Colum-  
bia, Defendants.

To the Supreme Court of the District of Columbia, Holding a  
Special Term in Equity.

The Complainant states:

1. It is a body corporate under the laws of the State of West  
Virginia and has for several years been engaged in laying sheet

asphalt pavements in the District of Columbia. It brings this suit in its own rights. The defendants, Henry B. F. Macfarland, Henry L. West, and John Biddle, are Commissioners of the District of Columbia, and represent the municipal corporation known as the District of Columbia. They are sued as such Commissioners. The defendant, Ellis H. Roberts, is the Treasurer of the United States, and as such Treasurer is by virtue of his office the Commissioner of the Sinking Fund of the District of Columbia, and he is sued in that official capacity.

2. On the 16th day of September, 1896, the complainant on the one hand, and the then Commissioners of the District of Columbia on the other hand, entered into a contract, partly in writing and partly printed, by which the complainant agreed to lay a sheet of asphalt pavement in accordance with the specifications set forth in said contract, on certain streets in the City of Washington, in the District of Columbia. Under said contract the complainant laid a sheet asphalt pavement on M Street Northwest in said City between Thirty-third and Thirty-sixth Streets and also on the south side of said Street between Thirty-first and Thirty-second streets, and said Commissioners accepted the same on or about the 19th day of January, and on the 22d day of June, respectively, 1897.

By said contract the Commissioners agreed that the complainant should be paid for said work at certain rates specifically set forth therein. The contract, however, contained the following provision:

"All pavements and other work will be guaranteed and kept in repair by the contractor without cost to the District for a period of five years from date of its acceptance by the commissioners. The date of the acceptance will be the date of the final voucher. Ten per centum of the cost of this work will be retained and disposed of as otherwise provided for herein."

"It is further expressly understood and agreed that if any of the pavements laid should, for any reason whatsoever, within the period of five years prove inferior to the best laid in the District prior to July 1, 1886, then the contractor shall, on demand of the Commissioners, remove such defective pavements and relay them with new material of approved quality and in accordance with these specifications. The Engineer Commissioner shall decide the question of inferiority."

3 "On expiration of guarantee for maintenance, the work is to be inspected, and all imperfections, depressions and unevenness of surface, alignment, and level of curbs, sidewalk, etc., on asphalt block pavement; also cracks, rolls, breaking up of wearing or cushion coat of concrete base, curb

alignment, and level on asphalt pavement or sidewalk, must be corrected where and to such an extent as the Engineer Commissioner shall direct, upon which the Engineer Commissioner will accept the same in writing, and until such acceptance the guarantee shall be in force."

3. The complainant duly performed all the work required of it under said contract. The five year term referred to in the foregoing provision expired on the 19th day of January, 1902. At that time the Commissioners of said District on behalf of said District accepted all the pavements laid under said contract as being in good condition and order, and no question or difference has arisen between the complainant and said Commissioners in regard thereto, except as to the pavement laid as aforesaid by the complainant on said M street said Commissioners called upon the complainant to repair the same and at the same time informed the complainant that if such repairs were not promptly made by the complainant the work would be undertaken by said District and the cost thereof charged to your complainant.

4. After the pavement of said parts of said M Street has been laid by the complainant under said contract, and before the expiration of the five years from the date of the acceptance thereof by the Commissioners of said District, the Commissioners

of said District authorized the Capital Traction Railway  
4 Company, a corporation which operates by electric power street cars on said M Street, to spike down on said pavements certain temporary railroad tracks and to run their cars over said temporary tracks for a period of several weeks. Said pavement was greatly injured and deteriorated by this means. And said pavement during said five years period through the negligence either of the Georgetown Gas Light Company, a corporation which furnishes illuminating gas to residences and places of business in said city through under-ground pipes or conduits under the streets thereof, or through the negligence of said Commissioners, or their subordinates, was further injured by being permeated by illuminating gas which escaped through some of said pipes or conduits for a period of several years immediately preceding the expiration of said five year term, the injury done to said pavement by the means last mentioned being so great that at the end of said five year term considerable portions of said pavements were practically dis-integrated. And the complainant says that but for the injuries caused, as aforesaid, by the laying of said temporary railway tracks and by said pavement being permeated with gas, said pavement at the end of said five year period would have been in perfect condition, and that all the defects which existed in it when said five year period expired were due wholly to said causes, and not to any

defect either in the composition of the pavement when it was laid, or in the manner in which it was laid or for any other cause for which the complainant was responsible, or which it had power to prevent.

5        5. When said Commissioners gave said notification to repair the pavement on said Street, the complainant, through its counsel, informed said Commissioners of the foregoing facts and declined, for the reasons above set forth, to repair said pavement, as required by said notification. Thereafter said Commissioners caused said pavement to be repaired and notified the complainant that the expense of such repairs was Nineteen hundred and ninety-one dollars and seventy-seven cents (\$1991.77). In accordance with the paragraph of said contract hereinabove quoted, the Commissioners of said District retained from the amount due the complainant under said contract ten per centum thereof, the amount so retained being Ten Thousand, two hundred and ninety-seven dollars and fifty-five cents (\$10,297.55). Said sum was turned over to the Treasurer of the United States for the time being as Ex Officio Commissioner of the Sinking Fund of the District of Columbia, and of said sum of Thirty-four dollars and forty-three cents (\$34.43) is still held by the defendant, Ellis H. Roberts, as Treasurer as aforesaid. The remainder has been invested as follows: Seven thousand, thirteen dollars and thirteen cents, (\$7,013.13) in the purchase of United States four per cent. registered bonds of 1907, of the aggregate face value of Sixty-four hundred dollars (\$6400.00); and Three thousand, two hundred and fifty dollars (\$3,250.00) in the purchase of District of Columbia 3.65% bonds of the aggregate face value of Three thousand dollars (\$3,000.00). All of said bonds are now in the possession of the defendant, Ellis H. Roberts, in his said official capacity.

6        6. On information and belief the complainant avers that said Commissioners, defendants hereto, have notified the defendant, Ellis H. Roberts, that they had expended in repairing said pavement the sum of Nineteen hundred and ninety-one dollars and seventy-seven cents (\$1991.77), and that said last mentioned defendant, unless prevented from doing so by the interposition of this Honorable Court, will sell said bonds, or some part thereof, and out of the proceeds of said sale pay over to the said Commissioners said sum. The complainant is advised and avers that because the condition of said pavement requiring the repairs hereinabove mentioned is the result of causes for which the complainant is in no wise responsible, said Commissioners had, and have, no right or power to cause said bonds, or any part of them, to be sold for the purpose aforesaid, but that nevertheless the defendant, Ellis H. Roberts, in his said official capacity, is about to sell said bonds, or part

thereof, and apply the proceeds to the satisfaction of the claim of said District against the complainant growing out of the expenditure by it of said sum of Nineteen hundred and ninety-one dollars and seventy-seven cents (1991.77).

7. The complainant is advised and further avers that it is without any remedy at law for the grievance hereinabove complained of because said District cannot be sued at law for said bonds or the value thereof, the same being in the official custody of the defendant, Ellis H. Roberts, and because said Ellis H. Roberts cannot be sued at law for said bonds or the value thereof since under the law he is required to conform to the directions of said Commissioners in regard to the same and has no power to pass upon the rightfulness of the action of said Commissioners in attempting to charge to this complainant the cost of said repairs. And being without remedy elsewhere the complainant respectfully prays:

1. That the defendants, and each of them, may be  
7 enjoined pending this suit, and perpetually thereafter, from applying said sum of Thirty-four dollars and forty three cents (\$34.43) and said bonds, or the proceeds thereof, or any part thereof, to the reimbursement of the District of Columbia, for the costs incurred by it in making said repairs.

2. That a receiver may be appointed in this case to take charge of said cash and bonds and that the defendant, Ellis H. Roberts, in his said official capacity be required to deliver said cash and said bonds to said receiver; that upon so much of the same as may not be required to protect said District as to its said claim of Nineteen hundred and ninety-one dollars and seventy-seven cents (\$1991.77) may be delivered to the complainant.

3. That the writ of subpoena may issue addressed to the defendants, and each of them, requiring them to appear at some certain day to be named therein to answer this bill and to abide by and perform such order and decree as may be made herein, and for such other and further relief, as to the court shall seem meet.

THE BARBER ASPHALT PAVING COMPANY,  
By A. S. WORTHINGTON,

*Its Solicitor.*

I, Robert M. Richards, on oath say that I am the general superintendent and agent of the Barber Asphalt Paving Company in the District of Columbia, and that as such I am more familiar with the matters to which the foregoing bill relates than any other person connected with said Company; that the statements made in said bill as upon personal knowledge are true;  
8 and those made upon information from others, I believe to be true.

ROBERT M. RICHARDS.

Subscribed and sworn to before me, a Notary Public in and for the District of Columbia, this 16<sup>th</sup> day of February, A. D. 1903.

[SEAL.] ALBERT E. SHOEMAKER,  
*Notary Public.*

Supreme Court of the District of Columbia.

THURSDAY, *February*, 19<sup>th</sup>, 1903.

The Court resumes its session pursuant to adjournment, Mr. Justice Gould, presiding.

No. 23,774. Eq. Doc. 53.

THE BARBER ASPHALT PAVING COMPANY

*vs.*

HENRY B. F. MACFARLAND ET AL.

Upon motion of the solicitor for the complainant, and upon consideration of the bill of complaint in this case, it is ordered that the defendants, Henry B. F. Macfarland, Henry L. West and John Biddle, Commissioners of the District of Columbia, and Ellis H. Roberts, Treasurer of the United States and Ex Officio Commissioner of the Sinking Fund of the District of Columbia, and each of them, show cause on the 25th day of February 1903, at the opening of the Court why a preliminary injunction should not be issued in this case as prayed for  
9 in said bill of complaint, and it is further ordered that until said day and until the further order of this Court, said defendants, and each of them, is hereby enjoined from applying, or directing the application of, any of the cash or bonds now held by said Ellis H. Roberts, as Treasurer as aforesaid, referred to and described in the fifth paragraph of said bill of complaint, to the payment of the sum of nineteen hundred and ninety-one dollars and seventy-seven cents (\$1991.77), claimed by said Commissioners to be due to the District of Columbia, as set forth in the sixth paragraph of said bill of complaint, and from in any way disposing of said cash or bonds. This injunction shall not issue until the complainant shall have filed in this cause and undertaking approved by the Court in accordance with Equity Rule No. 42.

ASHLEY M. GOULD, *Justice.*

10

*Affidavit of Robt. M. Richards.*

Filed April 14, 1903.

In the Supreme Court of the District of Columbia.

Equity. No. 23,774, Docket 53.

THE BARBER ASPHALT PAVING COMPANY

vs.

HENRY B. F. MACFARLAND ET AL.

I, Robert M. Richards, on oath say that for more than ten years past I have been the superintendent of the Barber Asphalt Paving Company in the District of Columbia, and as such superintendent have had charge of the laying of asphalt pavements by it in the City of Washington during that time. I superintended for that Company the laying of the pavement on the south side of M street between 31st and 32d Streets, and on both sides of said street between 33rd and 36th Streets, referred to in the bill of complaint in this case. I also had charge of the repairing of that pavement from the time it was laid until the five-year guarantee period expired. Within a few months after the pavement in question was laid, the Capital Traction Railway Company, a corporation which runs street cars by electric power on said M street, with the consent of the Commissioners of the District of Columbia, spiked down on the south side of M street between 31st and 32d Streets, and on the north side of said M Street between 33rd and 36th Streets, temporary railroad tracks and ran its cars upon said temporary tracks for several weeks. The said temporary tracks were so spiked down without the consent or knowledge of the Barber Asphalt Paving

Company. As soon as I found that this had been done,  
11 I, on behalf of said Barber Asphalt Paving Company, protested to the District Commissioners against their action, and against the said Barber Company being held responsible for any injury resulting to the pavements from the above cause.

For several months before the expiration of the five-year guarantee referred to in the bill in this case, parts of said pavement were in bad condition and an examination was made by me to ascertain whether this condition was the result of defective materials or workmanship. I found that where the pavement within the limits above described was in bad condition, it was permeated with illuminating gas. While this examination was going on I met on the Street by appointment A. W. Dow, the Inspector of Asphalts and Cements for the District of Columbia.



I saw him remove several samples from different parts of the said pavement and I examined said samples and found that they all contained illuminating gas which was obvious to the smell. Mr. Dow at the same time stated that he agreed with me in this conclusion. This occurred in January, 1902.

In the fall of 1902 when the District Commissioners were about to cause the surface coats of said pavement where the same was in bad condition to be removed and replaced, I examined said pavement and took several samples thereof, some of which I preserved in sealed jars which I now have in my possession. I have no doubt that if the jars were broken the odor of illuminating gas would still be given out by these samples. One of these jars I file with this affidavit and mark it "Exhibit A."

Only a part of said pavement was in bad condition. On the south side of M street between 31st and 32d Streets nearly all of it had to be repaired. Between 33rd and 36th Streets  
12 it required repairing only in spots, except on the north side of the street from 24th to the car barn of the Capital Traction Company, between 35th and 36th Streets, it was nearly all in bad condition and had to be repaired. My examination was made on, and my samples were taken from, practically all the defective parts of the pavement.

Other pavements were laid at the same time by the Barber Asphalt Paving Company in which the same materials were used and which were laid by the same workmen, and they remained in good condition from the time they were laid until after the expiration of the five-year guarantee period when they were inspected by the District Commissioners and accepted without objection.

Because of the facts above set forth and from my general acquaintance with asphalt pavements and their composition, and from the appearance of the pavement in question, it is my strong conviction that the bad condition of said pavement on the south side of said M Street between 31st and 32d Streets and on both sides of said Street between 33rd and 36th streets was due to the injuries resulting from said laying and use of temporary tracks, and to the escape of illuminating gas from pipes in said street under said pavement at the time it was laid.

ROBERT M. RICHARDS.

Subscribed and sworn to before me, a Notary Public in and for the District of Columbia, this 21st day of February, A. D. 1903.

ALBERT E. SHOEMAKER,  
*Notary Public, D. C.*

[SEAL.]



13

Filed April 14, 1903.

I, Allerton S. Cushman, on oath say as follows:

I am employed as a chemist in the road material laboratory of the Bureau of Chemistry of the Department of Agriculture in this City. I am a chemist by profession having taken my degree as Bachelor of Science in chemistry at the Worcester Polytechnic Institute in the year 1888 and took my degree of Doctor of Philosophy at Harvard College in the year 1897. I have been constantly engaged in the exercise of my profession since 1888. For the last two years I have had special experience in the line of my profession as applied to the study of materials used in the construction of roads.

In the fall of 1902, shortly before the repairs were made by the District Commissioners to the asphalt pavement on M street, between 34th and 36th streets, Northwest, I personally examined the condition of that pavement, especially on the north side of the street, the south side being in fair condition, and took from the north side of the street at intervals of about one hundred feet, from 34th street down to the car barn of the Capital Traction Company between 35th and 36th streets, samples of the pavement. Upon my examination of the pavement and of the material which I removed from the street, I found it strongly impregnated with illuminating gas such as is used for illuminating purpose in the City of Washington. This was obvious to the sense of smell of any person. The samples which I so removed I took to the laboratory and there subjected them to the proper tests and found from those tests that they were permeated with such illuminating gas.

14 From the examination which I made of this pavement in the street and from the tests made of the samples taken by me from the street, and from my general knowledge of the effect of such a gas upon such material, I have no hesitation in saying that my clear opinion is that the bad condition of the pavement on the north side of M street between 34th and 36th Streets was caused by illuminating gas mingling with the material of the pavement, and not by any defect in the pavement itself.

ALLERTON S. CUSHMAN.

Subscribed and sworn to before me, a Notary Public in and for the District of Columbia, this 21st day of February, 1903.

HARRY H. HOLLANDER,

[SEAL.]

*Notary Public, D. C.*

I consent that these affidavits may be now filed and considered as filed with the original bill.

E. H. THOMAS,  
for D. C.

April 13, 1903.

*Answers of Commissioners.*

Filed April 29, 1903.

In the Supreme Court of the District of Columbia.

Equity. No. 23,774.

THE BARBER ASPHALT PAVING COMPANY, Complainant,  
vs.

HENRY B. F. MACFARLAND, HENRY L. WEST, and JOHN BIDDLE,  
Commissioners of the District of Columbia, and ELLIS H.  
ROBERTS, Treasurer of the United States, and Ex Officio  
Commissioner of the Sinking Fund of the District of Colum-  
bia, Defendants.

The separate answer of Henry B. F. Macfarland, Henry L. West, and John Biddle, Commissioners of the District of Columbia, to the Bill of Complaint exhibited herein against them and others.

These defendants, now and at all times hereafter saving to themselves all and all manner of benefit or advantage of exception or otherwise that can or may be had or taken to the many errors, uncertainties and imperfections in said bill contained, for answer thereto or to so much thereof as they are advised it is material or necessary for them to make answer to, answering say:

1. They admit the allegations of the first paragraph of said Bill respecting the corporate existence of the complainant; that they are the Commissioners of the District of Columbia, and that the Defendant Ellis H. Roberts is the Treasurer of the United States, and Ex Officio Commissioner of the Sinking Fund of the District of Columbia.

2. Answering the second paragraph of said bill, they  
16 say, that on September 16, 1896, the complainant corporation entered into a contract with the District of Columbia, partly in writing and partly printed, which contract was under the seal of the respective parties thereto, by which it agreed to furnish all necessary labor and material, except as otherwise therein provided, and in a good, firm, and substantial manner, in strict accordance with the specifications and general

stipulations thereunto attached and made a part of said contract, to execute the following described work, to-wit:

"Lay Standard Asphalt pavements upon a six (6) inch hydraulic base or an eight (8) inch hydraulic base, two inch binder and two and one-half inches asphalt surface before compression, upon such streets and avenues in the District of Columbia as may hereafter be ordered by the Commissioners of said District, during the fiscal year ending June 30, 1897."

These defendants say that under said above-mentioned contract the complainant laid a sheet asphalt pavement on M Street, N. W., in the city of Washington, between 33d and 36th streets and also on the south side of said street between 31st and 32d streets, and that the then Commissioners of the District of Columbia accepted the same on or about January 19, 1897, and June 22, 1897; they admit that the said contract contained the following provisions:

"All pavements and other work will be guaranteed and kept in repair by the contractor without cost to the District for a period of five years from date of its acceptance by the Commissioners. The date of the acceptance will be the date of the final voucher. Ten per centum of the cost of this work will be retained and disposed of as otherwise provided herein.

17 "It is further expressly understood and agreed that if any of the pavements laid should, for any reason whatsoever, within the period of five years prove inferior to the best laid in the District prior to July 1, 1886, then the Contractor shall, on demand of the Commissioners, remove such defective pavements and relay them with new material of approved quality and in accordance with these specifications. The Engineer Commissioner shall decide the question of inferiority.

"On expiration of guarantee for maintenance, the work is to be inspected, and all imperfections, depressions and unevenness of surface, alignment, and level curbs, sidewalk etc., on asphalt block pavements; also cracks, rolls, breaking up of wearing or cushion coat or concrete base, curb alignment, and level on asphalt pavement or sidewalk, must be corrected where and to such an extent as the Engineer Commissioner shall direct, upon which the Engineer Commissioner will accept the same in writing, and until such acceptance the guarantee shall be in force."

Said contract also contained among its General Stipulations the following provision:

"The bidder is expected to examine the site before bidding, as no allowance will be made for any unusual difficulties which may arise, either affecting the original construction or maintenance of the finished work."

3. They admit that the complainant performed all the con-

struction work required of it under said contract. They deny that the said five year term referred to in the said Bill and the said contract expired on the 19th day of January, 1902, and in this connection they refer to the provision of the said contract hereinbefore mentioned which states that the said work "must be corrected where and to such an extent as the Engineer  
18 Commissioner shall direct, upon which the Engineer Commissioner will accept the same in writing, and until such acceptance the guarantee shall be in force;" and they say that the Engineer Commissioner did not accept said work, and that the guarantee remained in force after the 19th day of January, 1902, and during the whole of the period that the work was repaired by the defendants as hereinafter stated.

Further answering said paragraph these defendants say that about — time the five year period mentioned would have expired the complainant made all necessary repairs to other pavements laid under said contract except the pavement mentioned in the third paragraph of said Bill laid by the complainant on said M street as aforesaid; that the said Commissioners prior to the 19th day of January, 1902, called upon the complainant to repair and make good the same, and did inform the complainant that if the same was not done promptly the work of repairing would be undertaken by these defendants and the costs thereof charged to said complainant.

4. They admit that after the pavement of said part of M street had been laid by the complainant, and before the expiration of five years, from the date of its acceptance, the Commissioners of the District of Columbia permitted the Capital Traction Railway Company to place temporary rails on the south side of M street between 31st street and 32d street; and from thence crossing to the north side of said M street and continuing to 36th street to run their cars on for a period of several weeks, but they say on their official information that there were no defects caused thereby in said street which could be traced  
19 in any way to the occupation of the said street by the said temporary tracks, and they deny that said pavement was materially injured and deteriorated thereby.

Further answering said paragraph, these defendants say that forty per cent of the said pavement on M street requiring repair, to wit: a portion between 34th and 36th streets, became impregnated to a certain extent with illuminating gas, but they deny that the same was the result of any negligence on the part of the said Commissioners, or their subordinates, as alleged in said paragraph, and they also deny that the same was the result of negligence of the Georgetown Gas Light Company, mentioned in said paragraph, and they say on the said portions of the said street where the same became impregnated as afore-

said with said gas the natural seepage of water, which occurred to a large extent at said places, combined with the said illuminating gas, caused the said portions of said pavement to be deteriorated, but as to sixty per cent of said pavement requiring repair there was no indication of gas; and they are advised that by virtue of the terms of the contract hereinbefore mentioned the complainant corporation became, was, and is bound to make good and repair the said pavement, and the said District became, was, and is entitled to have and retain sufficient part of said money to enable it to put the same in good condition, and to charge the cost of the same to the complainant.

Further answering said paragraph these defendants say that temporary railway tracks have been laid repeatedly on asphalt pavement on other streets in the District of Columbia, and that it has been demonstrated thereby that the laying and use of said railway tracks does not cause the said pavement to become injured, deteriorated, or disintergrated; and they further

20 say that, as a matter of fact, it is the common experience at the end of such five year period to find that such pavement requires repairs; and that the said guarantee provision in the said contract was, and is, intended to require the contractor to correct and make good said pavement at the end of said period; and they deny that the imperfect condition of all of the said pavement was caused by its being permeated with gas, and that the same at the end of said five year period would have been in perfect condition but for the laying of said tracks and said gas, and that the defects which existed in it when said five year period expired were due wholly to said causes; and they say that the Engineer Commissioner of the District aforesaid, in good faith, directed the correction of the said work, and that the complainant refused to correct it, and that the said Commissioner did not accept the same in writing, whereby the complainant did not become entitled to have or receive the whole of the money or property of the defendant claimed under any circumstances, but the complainant was, and is, chargeable with the cost and expense of correcting said pavement.

5. Answering the fifth paragraph of said Bill these defendants say that in response to a complaint on behalf of the complainant that the said temporary tracks were disfiguring the surface of said pavement on the south side of said M Street from 31st street to about one hundred and fifty feet west of 33d street and the north side of said street from that point to about the same distance west of 33d street the then Commissioners of the District of Columbia caused the said complaint to be investigated and an inspection of the said street to be made by

21 the Inspector of Asphalt and Cement, and on January 31, 1899, he reported that he found only one spike hole about

one inch in diameter and a crevice between the brick gutter and the asphalt about one foot long by one inch wide, which defects were reported to be too small to call for repair, because the same would be effaced during the then coming summer; and they say that shortly thereafter the said temporary tracks were removed; and they further say that the said complaint did not refer in any manner to illuminating gas; and they further say that four years thereafter, to wit, by letter dated the 14th day of January, 1902, R. M. Richards, the Superintendent of the complainant Company, responding to a claim that the complainant should be required to make repairs to the said pavement, wrote to the then Commissioners of the District of Columbia as follows: "We invite your attention to the fact that the defective pavement on this street from 31st to 36th streets, all of which is under guarantee by this Company, is almost entirely confined to the portions occupied by the temporary tracks during the re-construction of the railway in 1898," and did not in any manner refer to or mention or make complaint of illuminating gas. These defendants further say that on the 2d day of August, 1902, they notified the complainants to undertake, within ten days thereafter, the repair of said pavement between 33d and 36th streets, and informed it that if the said repairs were not begun within the time mentioned the District of Columbia would undertake the said work and charge the cost thereof to any money that might be due the complainant, as provided in said contract; that in response to said notice the Commissioners of the District of Columbia were informed by letter of the complainant's

22 counsel, dated October 7, 1902, that "The Company claims that whatever defects exist in this pavement now are mainly, if not wholly, the result of the leakage of illuminating gas from the gas main underlying this part of M street, and if there are any defects in the pavement not caused by illuminating gas, they are the result of the action of the Commissioners in allowing the Capital Traction Company to spike down on the pavement temporary tracks for the use of its cars." And thereafter this defendant caused said pavement to be repaired and the cost of such repairs was the sum of \$1,991.77, whereof the said complainant was duly notified.

These defendants admit that the amount retained under the terms of the aforesaid contract with the complainant is \$10,297.55, which said sum was turned over to the Treasurer of the United States, Ex Officio Commissioner of the Sinking Fund of the District of Columbia; that of said sum \$34.43 is still held by the defendant, Ellis H. Roberts, Treasurer as aforesaid, and the remainder thereof, as stated in complainant's Bill, has been invested in United States Bonds and District of Columbia Bonds, as provided by the Act of Congress approved March 3,

1877 (24 Stats. 501); and said bonds are now in the possession of the defendant Ellis H. Roberts in his official capacity as aforesaid; that on the 17th day of January, 1903, the Secretary of the Treasury of the United States caused the Treasurer of the United States to place said sum of \$1,991.77 to the credit of the Disbursing Officer of the District of Columbia as and for disbursement of account of said repairs, and, acting in good faith, said Disbursing Officer on the 20th day of January, 1903, before this suit, paid out and disbursed the said money.

23        6. Answering the sixth paragraph of said Bill, these defendants say that they notified the defendant, Ellis H. Roberts, Treasurer as aforesaid, that the said repairs would cost \$1,991.77, and they say they gave the said notice to the Secretary of the Treasury on the 13th day of January, 1903, and that thereafter, to wit, on the 17th day of January, 1903, they were notified that the said money had been placed to the credit of the Disbursing Officer of the District of Columbia.

Further answering this paragraph, these defendants say that the said bonds are entirely under the custody and control of the Secretary of the Treasury, who can order only the sale thereof, and unless he directs the Treasurer of the United States to sell the same said bonds cannot be sold, and that they have no control whatever over the sale of said bonds further than to request, as they have done, as aforesaid, that the said Treasurer be directed to sell the said bonds, and that a sum necessary to pay for said repairs be placed to the credit of the District of Columbia.

These defendants further say that they are advised that if the said asphalt pavement was in point of fact injured as claimed by the complainant, yet, under the said contract, it was the duty of the said complainant to repair the same.

7. These defendants deny the conclusion of law set up in the seventh paragraph of said Bill, and they are advised that the complainant has a complete and adequate remedy at law against the District of Columbia to recover any sum of money due under said contract; and they say, as matter of  
24        fact, that they have no control whatever over the sale and disposition of said bonds except as aforesaid to request the Secretary of the Treasury to require the Treasurer of the United States to sell said bonds, which said action these defendants took, as hereinbefore stated, before this suit was commenced.

These defendants deny that the said Roberts under the law is required to conform to the direction of the Commissioners of the District of Columbia in regard to the said bonds.

Further answering said Bill, these defendants say that the



said contract also provided by section ten (10) of the General Stipulations thereof as follows:

"Failure to commence the work at the time especified, or to prosecute it thereafter in a satisfactory manner and at a rate of progress necessary, in the opinion of the Commissioners, for its entire completion within the limits of the time fixed by the contract, will be authority for the Commissioners to suspend the contractors from the work and employ other parties to complete it, or to employ additional labor to assist in its completion, or to annul the contract. All money due the contractors at the date of failure will be applied to the conduct and maintenance of the work, and any excess of cost over and above the contract price will be charged against the contractor and sureties, who will each and severally be held liable therefor." And that thereby because of the failure of the complainant to maintain the said pavement on said M street in repair, and to correct the same where and to such an extent as the Engineer Commissioner shall direct, and until the acceptance of the same by the

25 Engineer Commissioner in writing (as provided in said guarantee clause of said contract hereinbefore set forth, which said acceptance as hereinbefore stated has never been made) the said District of Columbia and these defendants, as its Executive Officers, became, were, and are entitled to apply all money due said contractor at the date of said failure including so much of said retent and guarantee fund as has been or may be required until such acceptance, and to have a sale of sufficient of said bonds for said purpose according to the true intent and meaning of said contract and the law applying to such retent or guarantee fund.

And these defendants annex hereto, and make the same a part of this answer, the affidavits of C. B. Hunt and Allen W. Dow.

And they say that the complainant has not in its Bill exhibited against them any such cause as entitles it to any relief whatever in this Honorable Court, and they pray the same advantage of this suggestion as if they had demurred for want of equity to the Bill of Complaint filed herein.

And having fully answered, these defendants pray to be hence dismissed with their costs.

HENRY B. F. MACFARLAND,  
JOHN BIDDLE,

*Commissioners, D. C.*

A. B. DUVALL,  
E. H. THOMAS,  
*Sol'rs, &c.*



DISTRICT OF COLUMBIA, ss:

Personally appear Henry B. F. Macfarland, Henry L. West, and John Biddle, who, being duly sworn, say; that they are the Commissioners of the District of Columbia; that they  
26 have read the foregoing answer by them subscribed and know the contents thereof, and that the facts therein stated upon their own knowledge are true and those stated upon information and belief they believe to be true.

HENRY B. F. MACFARLAND,  
JOHN BIDDLE.

Subscribed and sworn to before me, this 29<sup>th</sup> day of April, A. D. 1903.

[SEAL.]

WILLIAM TINDALL,  
*Notary Public, D. C.*

In the Supreme Court of the District of Columbia.

Equity. No. 23,774, Doc. 53.

THE BARBER ASPHALT PAVING COMPANY, Complainant,  
vs.

HENRY B. F. MACFARLAND ET AL., Defendants.

DISTRICT OF COLUMBIA, ss:

I, Conway B. Hunt, on oath say that I am now, and have been for six (6) years last past the Computing Engineer of the District of Columbia; that next prior thereto I was for six (6) years an assistant engineer of said District; that about January A. D. 1898, the Capital Traction Company was given permission to install a conduit electric system on its tracks on M street, North-west, in Georgetown, and in doing said work said company laid temporary rails and ran its cars over the same  
27 on the south side of M street between 31st and 32nd streets, and on the north side of said M street between 33rd and 36th Streets; that by letter dated 29th day of January, 1898, complainant, by R. M. Richards, its Superintendent, wrote the Commissioners of the District of Columbia, as follows:

"Gentlemen:

Your attention is invited to the extraordinary use and consequent abuse of the asphalt pavement on M Street between 31st and 36th streets, laid by this Company, under contracts Nos. 2350 and 2491, between the District of Columbia and ourselves and now under guarantee of repairs by us for a term of

years. During the installation of the conduit electric system on the Capital Traction Company's road that company has been permitted to abandon its right-of-way in the center of the roadway and use temporary tracks laid directly on the asphalt pavement, without any effort whatever being made to protect said pavement from injury occasioned by the diversion from its proper use. Damage along the line of junction of brick gutters and asphalt is now apparent on the south side between 32d and 33d streets, when one of the temporary rails bears on the joint of the two pavements. Along other portions of the road where these temporary tracks have been laid on asphalt pavements injury, at least to appearance, is visible, and we have no doubt that when the tracks are taken off the M street pavement, the asphalt surface will be disfigured. We are aware that if any repairs are immediately necessary, they will be made without cost to us, but some of the injury will only be accentuated by cutting out and renewing, yet under the contract provisions we may be required to correct any imperfections and unevenness of surface at the expiration of the guarantee

28 period. We therefore ask that record be made of this protest against being held responsible for injury to the pavement incident to its diversion from its proper use, especially as absolutely no effort has been made to protect it. The portions of the pavement which have been so abused, for ten days now, are the south side from 31st street to about 150 feet west of 33rd Street, and the north side from that point to about the same distance west of 35th Street.

Very respectfully,

THE BARBER ASPHALT PAVING COMPANY,  
R. M. RICHARDS, *Sup't.*"

That the said letter was by affiant referred to the Inspector of Asphalts and Cements on or about the 31st day of January, 1898, for the purpose of a careful examination by him after the removal of the temporary appliances of the railway, and that on the 1st day of February, 1898, the said Inspector made the report thereon mentioned in his affidavit filed in connection herewith.

Thereupon the said Richards was informed by the Commissioners of the District of Columbia, by letter dated April 13th, 1898, that the said defects or damage were too small and unimportant to require any special action, or to affect the guarantee of the complainant, but that, nevertheless, careful attention would be given to the pavement and the claim of the complainant duly considered. That the said Richards, acting for the complainant, on the 14th day of January, 1902, renewed

29 his claim respecting the said injury alleged to have been caused by the said temporary tracks as described in his said letter dated January 29th, 1898; and that affiant found that no harm was done to the said pavement as a result of the occupation by temporary tracks, and such was the fact, which was also found to be true on or about the 23d day of January 1902, by the Inspector of Asphalts and Cements. And thereupon affiant recommended that unless complainant made the necessary repairs to the said pavement within the period of ten days after notice, that the District of Columbia undertake the same and charge the cost of same to the complainant. That thereupon counsel for complainant on the 7th day of August, 1902, requested that no action be taken until Mr. Worthington, of their counsel, could be consulted, and it was represented that Mr. Worthington was then out of the City. The Commissioners thereupon suspended action until October 1st, 1902.

Thereafter, on the 22d day of October, 1902, nothing having been done by complainant, the complainant was again notified that if said repairs were not begun at the end of ten days thereafter, the District of Columbia would undertake to do said work at their cost, and thereupon said complainant refused to do the said work, and the District of Columbia made the said repairs and upon measurement thereof on or about December 30th, 1902, shortly after their completion, it was found and is a fact that the cost of said repairs of the south side of M street, north-west, between 31st and 32nd Streets amounted to \$770.12, and the cost of said repairs on both sides of said M street between 33rd and 36th streets amounted to \$1,221.65 a total of \$1,991.77.

30 I further say that there were no repairs necessitated by the laying and use of said temporary tracks.

I further say that I have personal knowledge of the fact during the period of six years of the effect of temporary railway tracks on like asphalt pavements, and that it has been found and is a fact that the laying and use of such railway tracks does not injure the said pavement. I further say that I have practical knowledge of the time when such pavement will remain and continue in perfect condition, and that it is common experience that at the end of the guarantee period of five years such pavements require repairs, sometimes to a considerable extent.

I do not undertake to say what effect illuminating gas, alone or combined with water, will have upon such pavements. I further say that gas mains are commonly under the streets of the city of Washington whereon and over which such pavements are laid and that illuminating gas did not impregnate

such pavements, nor did water soak into the same through any neglect of the District of Columbia.

I say that the other pavements laid at the same time by the complainant required repairs, and that the same were made by the complainant at the expiration of the five year guarantee period and that therefore the District of Columbia was not required to make the same.

CONWAY B. HUNT.

Subscribed and sworn to before me this 28th day of April, A. D., 1903.

[SEAL.]

ROGER WILLIAMS,  
*Notary Public, D. C.*

31 In the Supreme Court of the District of Columbia.

Equity. No. 23,774, Doc. 53.

THE BARBER ASPHALT PAVING COMPANY, Complainant,  
vs.

HENRY B. F. MACFARLAND ET AL., Defendants.

DISTRICT OF COLUMBIA, ss:

I, A. W. Dow, on oath say:

I am, and since 1894 have been, Inspector of Asphalt and Cement for the District of Columbia. I graduated from the School of Mines, Columbia College, in 1888, receiving the degree of Ph. B. in the course of Analytical and Applied Chemistry. I was Honorary Fellow in Quantitative Analysis at the School of Mines, until 1889, when I entered on the work of my profession, and was appointed first assistant chemist of the Barber Asphalt Paving Company. This position I held up to the time of my entering the employ of the District of Columbia in 1894 as Inspector of Asphalt and Cement. I have made a speciality of the studying of the use of asphalt and bituminous materials in relation to paving and have done considerable independent study, both in the laboratory and in practical experience in this industry.

That on or about the 1st day of February, 1898, the complaint of R. M. Richards, Superintendent, mentioned in his letter of January 29, 1898, was referred to me by the Engineer Commissioner of the District of Columbia, and that at said

32 time I made an examination of the street mentioned, and I found a few depressions in said street, one spike hole about one inch in diameter and a crevice between the brick gutter and the asphalt about one foot long by one inch

wide. I further say that said defects were too small to call for repairs, and I then believed and so reported that they would be effaced during the then coming summer.

I further say that in my opinion based on my experience no permanent injury to said pavement resulted from said defects, and I further say that I made this examination in company with the said Richards, and said Richards then said to me in substance that the damage was not as great as he had expected to find it.

I further say that in the month of January, 1902, I made another inspection of the said street at the time when the said Richards was present. At said time there were no defects whatever discovered that could be charged in any way to the occupation of this pavement by the temporary railway tracks. And the said Richards agreed with me at that time that none of the then existing defects in the pavements were due to the temporary tracks, but claimed that inasmuch as the District of Columbia allowed a pavement which was under guarantee to be used for a purpose that was liable to weaken it, that such a procedure on the part of the District relieved the complainant from the responsibility for the maintenance of the pavement.

I further say that in the Fall of 1902, after the expiration of the five years for which this pavement was guaranteed, I examined its condition to determine what repairs were necessary thereon before the final acceptance of this pavement by the

33 District of Columbia, I found that the greater portion of this pavement was disintegrating. After a careful investigation of the existing conditions to ascertain the cause of the disintegration of this pavement I will say from the best of my knowledge and belief that this rotting was in all cases due entirely or partially to the seepage of ground water up through the concrete base which destroyed the cementitious properties of the asphalt.

The portion of this pavement on the south side of M Street between 31st and 32d streets was practically all rotting, this rotting being entirely due to the ground water seeping up through the concrete. One or two very small areas of this portion of the pavement smelt of illuminating gas and the rotting in such places may have been aided by the presence of said gas.

The portion of this pavement on the north side of M street between 34th and 36th streets was apparently disintegrating from the action of illuminating gas and water, but there were several places where the pavement was rotten where no indications of gas could be found, and the injury was alone due to ground water soaking up through the concrete.

I further say that on the south side of M street between 34th and 36th streets, the pavement was found disintegrated in sev-

eral places from ground water soaking up through the concrete, and no indications of gas were found in this section and that the pavement between 33d and 34th streets on both sides of the way was in fairly good condition. I say that what poor places there were, were due to the rotting from ground water soaking up through the concrete, with the exception of one or two places where there were indications of the presence of illuminating gas.

I further say that the said temporary tracks were not laid on all of the said pavement which was repaired by the District of Columbia but to the best of my knowledge and recollection, on the south side of M street from 31st street to about 150 feet west of 33rd street, thence to the north side of about 150 feet west of 35th street and the said temporary tracks were along the edge of the gutter and were single tracks of the width of about 5 feet and 1 inch; and that said tracks were laid with special plates at their joints and were so designed that they required but few spikes to be driven into the pavement.

To the best of my knowledge and belief not more than 40 per cent of the pavement replaced by the District of Columbia showed evidence of the presence of illuminating gas and the seepage of ground water, and that no part of said pavement was found in a rotten condition, but that ground water was seeping through the concrete.

I further say that generally speaking, without giving details, about 60 per cent of the repairs done by the District of Columbia to this pavement was caused by the seepage of water alone.

ALLAN W. DOW.

Subscribed and sworn to before me this 28th day of April, A. D., 1903.

[SEAL.] A. LEFTWICH SINCLAIR,  
Notary Public, D. C.

35 *Order to U. S. Treasurer for Retention of Part of Fund.*

Filed May 5, 1903.

In the Supreme Court of the District of Columbia.

No. 23,774. Equity.

THE BARBER ASPHALT PAVING COMPANY

vs.

HENRY B. F. MACFARLAND ET AL.

Upon consideration of the pleadings in this case and of the motion filed herein by the complainant for the appointment of a receiver, and upon consideration also of the motion of the

defendants, the Commissioners of the District of Columbia, to dissolve the restraining order heretofore issued in this case, and after hearing argument by counsel for the respective parties it is, this 5th day of May, 1903; ordered that the defendant, Ellis H. Roberts, as treasurer of the United States and ex-officio Commissioner of the sinking fund of the District of Columbia, be, and he is hereby, authorized and directed to retain and hold until the further order of the court in this case four per cent. registered bonds of the United States of 1907 being part of the fund referred to and described in the fifth paragraph of the bill of complaint in this case—of the aggregate face value of \$2,500.00, and to forthwith assign to the complainant the Barber Asphalt Paving Company, and deliver to said Company or its solicitor of record in this case, the remainder of the bonds constituting said fund—being four per cent registered bonds of the United States of 1907 of the aggregate face value  
 36 of \$3,900.00 and 3.65 bonds of the District of Columbia of the aggregate face value of \$3,000.00, and to deliver to said Company, or its solicitor of record, the sum of \$34.43, constituting a part of said fund.

And it is further ordered that said motion to dissolve the restraining order heretofore issued in this case be, and it is hereby, overruled, except as said restraining order is hereinabove modified.

ASHLEY M. GOULD, *Justice.*

*Separate Answer of Deft Ellis H. Roberts.*

Filed June 16, 1903.

In the Supreme Court of the District of Columbia.

No. 23,774. Equity. Doc. 53.

THE BARBER ASPHALT PAVING COMPANY

*vs.*

HENRY B. F. MACFARLAND ET AL.

The defendant Ellis H. Roberts, Treasurer of the United States and ex officio Commissioner of the Sinking Fund of the District of Columbia, for answer to the bill of complaint says:

1. He admits the allegations of the first paragraph.
2. On information and belief he admits the allegations of the second paragraph.

3 and 4. The matters alleged in the third and  
 37 fourth paragraphs of the bill are not within the knowledge of this defendant, and he neither admits nor denies the same.



5. This defendant has no knowledge of the matters set forth in the first two sentences of paragraph five, and can neither admit nor deny the same.

As to the remaining averments of said paragraph, this defendant admits that there was turned over to him by the Commissioners of the District of Columbia, the sum of \$10,297.55, the retain under the contract mentioned in the bill of complaint, and that this defendant, at the request of the complainant, invested all of said sum except the sum of \$34.43 as set forth in said paragraph.

And this defendant further says that on the 19th day of May, 1903, under the order of this court, passed herein on the 5th day of May, 1903, he turned over said money and all of said bonds to the solicitor of record of the complainant herein, except the United States registered four per cent. bonds of 1907 of the par value of two thousand five hundred dollars, which he now retains.

6. This defendant admits that the Commissioners of the District of Columbia, on February 6, 1903, authorized a settlement with the complainant of the said contract in the sum of \$8,305.78, and requested a deduction from the said retention of the sum of \$1,991.77 on account of repairs made to said pavement.

This defendant further says that on March 10, 1903, he was directed by the Secretary of the Treasury to deposit from said retention said sum of \$1,991.77 in the Treasury of the  
38 United States to the credit of the Guarantee Fund of the District of Columbia, and that he would have done so had it not been for the order of this honorable Court.

As to the remaining averments of said paragraph, this defendant has no knowledge, and can neither admit nor deny the same.

7. This defendant says that the matters set forth in the seventh paragraph of the bill of complaint are matters of law, and do not require to be answered.

And having fully answered, this defendant prays to be hence dismissed, with his costs.

ELLIS H. ROBERTS,  
*Treasurer of the United States.*

MORGAN H. BEACH,  
*Solicitor for the Defendant,*  
*the Treasurer of the United States.*

DISTRICT OF COLUMBIA, ss:

I, Ellis H. Roberts, Treasurer of the United States, on oath, say that I have read the foregoing answer by me subscribed, and know the contents thereof; that the facts therein stated



of my own knowledge are true, and that those stated on information and belief I believe to be true.

ELLIS H. ROBERTS.

Subscribed and sworn to before me, a Notary Public, in and for the District of Columbia, this 12th day of June, 1903.

HIRAM W. BARRETT,

[SEAL.]

Notary Public, D. C.

39

*Replication.*

Filed June 22, 1903.

In the Supreme Court of the District of Columbia.

No. 23,774. Equity. Doc. 53.

THE BARBER ASPHALT PAVING COMPANY

vs.

HENRY B. F. MACFARLAND ET AL.

Now comes the complainant and joins issue with the defendants and will hear the case on the bill, answers and proofs.

A. S. WORTHINGTON,

*Solicitor for Complainant.*

40

*Supplemental Bill of the Complainant.*

Filed November 24, 1903.

In the Supreme Court of the District of Columbia.

Equity. No. 23,774, Docket No. —.

THE BARBER ASPHALT PAVING COMPANY, Complainant,

vs.

HENRY B. F. MACFARLAND, HENRY L. WEST and JOHN BIDDLE, Commissioners of the District of Columbia, and ELLIS H. ROBERTS, Treasurer of the United States, and Ex Officio Commissioner of the Sinking Fund of the District of Columbia, Defendants.

To the Supreme Court of the District of Columbia, Holding a Special Term in Equity.

By leave of the court first had and obtained, the complainant by way of amendment and supplement to the original bill in this case states to the court:

1. That on the — day of —, 1903, it filed its original bill against the defendants for injunction and receiver, growing out of a certain controversy therein stated with reference to the pavement of certain portions of M Street, Northwest, between 31st and 36th street under and by virtue of a contract entered into between the Barber Asphalt Paving Company on the one hand and the then Commissioners of the District of Columbia on the other, said contract being number

2350. The complainant now files its supplemental bill  
41 concerning similar matters in controversy arising after the filing of its original bill out of the paving of the other portions of said M Street between 31st and 36th Streets, under contract number 2491.

2. On the 19th day of August, 1897, the complainant on the one hand and the then Commissioners of the District of Columbia on the other hand, entered into a contract partly in writing and partly printed, by which the complainant agreed to lay a sheet asphalt pavement in accordance with the specifications set forth in said last mentioned contract on certain streets in the City of Washington, in the District of Columbia. Under said contract which is known as number 2491, the complainant laid a sheet of asphalt pavement on said M Street, Northwest, in said City on the north side thereof between 31st and 32nd Streets, and on both sides thereof between 32nd and 33rd Streets. And the said Commissioners accepted the same respectively on the 12th and the 14th days of January, 1898. By said contract the Commissioners agreed that the complainant should be paid for said work at certain rates specifically set forth therein. The contract, however, contained the following provision:

“All pavements and other work will be guaranteed and kept in repair by the contractor without cost to the District for a period of five years from date of its acceptance by the Commissioners. The date of the acceptance will be the date of the final voucher. Ten per centum of the cost of this work will be retained and disposed of as otherwise provided for herein.

“It is further expressly understood and agreed that if any of the pavements laid should, for any reason whatsoever, within the period of five years, prove inferior to the best  
42 laid in the District prior to July 1, 1886, then the contractor shall, on demand of the Commissioners, remove such defective pavements and relay them with new material of approved quality and in accordance with these specifications. The Engineer Commissioner shall decide the question of inferiority.

“On expiration of guarantee for maintenance, the work is to be inspected, and all imperfections, depressions and unevenness

of surface, alignment and grade of curbs, sidewalk, etc., also cracks, rolls, breaking up of wearing or cushion coat or concrete base on asphalt pavement or sidewalk, must be corrected where and to such an extent as the Engineer Commissioner shall direct, upon which the Engineer Commissioner will accept the same in writing, and until such acceptance the guarantee shall be in force."

3. The complainant duly performed all the work required of it under said contract. The five year term referred to in the foregoing provision expired on the 12th day of January, 1903, for the work done on the north side of said M Street between 31st and 32nd Streets, Northwest, and expired on the 14th day of January, 1903, for the work done on said M Street between 32nd and 33rd Streets Northwest. The Commissioners of said District have accepted all the pavements laid under said contract 2491 as being in good condition and order and no question or difference has arisen between the complainant and said Commissioners in regard thereto, except as to the pavement laid thereunder as aforesaid by the complainant on said M Street said Commissioners called upon the complainant to

43 repair the same and at the same time informed the complainant that if such repairs were not promptly made by the complainant the work would be undertaken by the District and the cost thereof charged to your complainant.

4. After the pavement of the said part of M street covered by said contract 2491 had been laid by the complainant, and before the expiration of the five years from the date of the acceptance thereof by the Commissioners of said District, the said Commissioners authorized the Capital Traction Railway Company, a corporation operating by cable power street cars on said M street, to spike down on said pavement certain temporary railroad tracks and to run their cars by animal power over said temporary tracks for a period of several weeks. Said pavement was greatly injured and deteriorated by this means. And the said pavement during said five year period through the negligence either of the Georgetown Gas-Light Company, a corporation which furnishes illuminating gas to residences and places of business in said city through underground pipes or conduits under the streets thereof, or through the negligence of said Commissioners or their subordinates was further injured by being permeated with illuminating gas which escaped through some of said pipes or conduits for a period of several years immediately preceeding the expiration of said five year term, the injury done to said pavement by the means last mentioned being so great that at the end of said five year term considerable portions of said pavements were practically disintegrated. And the complainant says that but for the injury

caused as aforesaid by the laying of said temporary railroad tracks and by said pavement being permeated by gas  
44 said pavement at the end of said five years would have been in perfect condition and that all the defects which existed in it when said five year period expired were due wholly to said causes and not to any defect either in the composition of the pavement when it was laid, or in the manner in which it was laid, or for any other cause for which the complainant was responsible or which it had power to prevent.

5. When said Commissioners gave said notification to repair the pavement on said M Street, as above mentioned, the complainant through its counsel informed said commissioners of the foregoing fact and declined for the reasons above set forth to repair said pavement as required by said notification. Thereafter said Commissioners caused said pavement to be repaired on the North side thereof between 31st and 32nd streets and on both sides between 32nd and 33rd Streets. The completion of said repairs occurred some months after the filing by this complainant of its original bill in this cause. The Commissioners of said District have retained from the amount due the complainant for all the work done under said contract ten per centum thereof, the amount so retained being \$3,829.82. Said sum was turned over to the Treasurer of the United States for the time being as ex-officio Commissioner of the sinking fund of the District of Columbia. \$23.57, part thereof, is still held by the defendant Ellis H. Roberts, as treasurer as aforesaid. The remainder, \$3,806.25, has been by him invested in the purchase of United States 4% registered bonds of the aggregate face value of \$3,500.00. All of said bonds are  
45 now in the possession of the defendant Ellis R. Roberts in his official capacity.

6. On information and belief the complainant avers that said Commissioners, defendants hereto, are about to notify the defendant, Ellis H. Roberts, that they had expended certain sums in making said repairs and that said last mentioned defendant, unless prevented from doing so by the interposition of this Honorable Court, will sell said bonds, or some part thereof, and out of the proceeds of said sale pay over to the said Commissioners such sum. The complainant is advised and avers that because the condition of said pavement requiring the repairs hereinabove mentioned is the result of causes for which the complainant is in no wise responsible, said Commissioners had, and have, no right or power to cause said bonds, or any part of them, to be sold for the purposes aforesaid, but that nevertheless the defendant, Ellis H. Roberts, in his official capacity, is about to sell said bonds, or part thereof, and apply the proceeds to the satisfaction of the claim of the said Dis-

trict against the complainant growing out of the expenditure of such sum, the amount whereof is unknown to the complainant.

7. The complainant is advised and further avers that it is without any remedy at law for the grievances hereinafter complained of because said District cannot be sued at law for said bonds or the value thereof, the same being in the official custody of the defendant, Ellis H. Roberts, and because said Ellis H. Roberts cannot be sued at law for the said bonds or the value thereof since under the law he is required to conform to the directions of said Commissioners in regard to the same and

46 has power to pass upon the rightfulness of the action of said Commissioners in attempting to charge to this complainant the cost of said repairs. And being without remedy elsewhere the complainant respectfully prays:

1. That the defendants, and each of them, may be enjoined pending this suit, and perpetually thereafter, from applying said bonds, or proceeds thereof, or said money, or any part of said bonds or proceeds or money, to the reimbursement of the District of Columbia, for the costs incurred by it in making said repairs.

2. That a receiver may be appointed in this case to take charge of said cash and bonds and that the defendant, Ellis H. Roberts, in his said official capacity be required to deliver said cash and said bonds to said receiver; that thereupon so much of the same as may not be required to protect said District as to its said claim may be delivered to the complainant.

3. That the writ of subpoena may issue addressed to the defendants, and each of them, requiring them to appear at some certain day to be named therein to answer this bill, amended and supplemented, and to abide by and perform such order and decree as may be made herein, and for such other and further relief as to the court shall seem meet.

THE BARBER ASPHALT PAVING COMPANY,  
By A. S. WORTHINGTON,

*Its Solicitor.*

A. S. WORTHINGTON,

*Solicitor for Complainant.*

47 I, Robert M. Richards, on oath say that I am the general superintendent and agent of the Barber Asphalt Paving Company in the District of Columbia, and that as such I am more familiar with the matters to which the foregoing bill relates than any other person connected with said company; that the statements made in said bill as upon

personal knowledge are true; and those made upon information from others, I believe to be true.

ROBERT M. RICHARDS.

Subscribed and sworn to before me, a Notary Public in and for the District of Columbia, this 20th day of November, A. D. 1903.

[SEAL.]

SAM'L C. HILL,  
Notary Public, D. C.

*Endorsed.*

Leave is hereby given to file same, without affecting the restraining and other orders of the Court, passed in this cause.

ASHLEY M. GOULD, *Justice.*

48

*Rule to Show Cause.*

Filed November 24, 1903.

In the Supreme Court of the District of Columbia.

Equity. No. 23,774.

THE BARBER ASPHALT PAVING COMPANY, Complainant,  
vs.

HENRY B. F. MACFARLAND, HENRY L. WEST, and JOHN BIDDLE, Commissioners of the District of Columbia, and ELLIS H. ROBERTS, Treasurer of the United States, and Ex-Officio Commissioner of the Sinking Fund of the District of Columbia, Defendants.

Upon motion of the solicitor for the complainant and upon consideration of the amendment and supplement to the bill of complaint this day filed in this case, it is ordered this 24th day of November, 1903, that the defendants, Henry B. F. MacFarland, Henry L. West and John Biddle, Commissioners of the District of Columbia, and Ellis H. Roberts, Treasurer of the United States and Ex Officio Commissioner of the Sinking Fund of the District of Columbia, and each of them, show cause on the 8th day of December, 1903, at the opening of the Court, why a preliminary injunction should not be issued and a receiver be appointed in this case, as prayed for in the said amendment and supplement to the bill of complaint; provided a copy of the order be served upon each of said defendants on or before the 2nd day of December, 1903.

ASHLEY M. GOULD, *Justice.*

49

*Marshal's Return.*

Filed December 7, 1903.

Served a copy of the within rule to show cause on Henry B. F. MacFarland, Henry L. West & John Biddle personally, Nov. 27, 1903. Also served copy of the within rule on Ellis H Roberts personally, Nov. 28, 1903.

AULICK PALMER, *Marshal,*  
S.

50

*Answer of Defendant, &c.*

Filed January 8, 1904.

Equity. No. 23,774, Docket No. 53.

In the Supreme Court of the District of Columbia.

THE BARBER ASPHALT PAVING COMPANY, Complainant,  
vs.

HENRY B. F. MACFARLAND ET AL., Defendants.

The separate answer of Henry B. F. Macfarland, Henry L. West and John Biddle, Commissioners of the District of Columbia, to the amendment and supplement to the original bill herein filed.

These defendants now again reserving all and all manner of exception and objection set forth in their answer to said original bill as though the same were here again repeated, answering said matters of amendment and supplement, say:—

1. That they do not deny the matters averred in the first paragraph thereof.

2. They admit the making of the agreement by the parties mentioned in contract number 2491, and say that in part performance of said contract the complainant, subject to the conditions thereof, laid said sheet asphalt pavement on said M street as alleged.

These respondents refer to a copy of said contract number 2491 hereto attached and hereby made a part hereof for certainty respecting the terms, conditions and provisions thereof.

3. These respondents deny that the complainant duly performed all the work required of it under said contract as alleged, and on the contrary these respondents say  
51 that complainant refused and neglected to perform certain work imposed upon it by said contract, among others, in the particulars hereinafter mentioned, whereby they



say the Complainant is precluded from having the relief asked. They say that the five year term, referred to in the 3rd paragraph of said amendment and supplement expired on the 12th day of January, 1903, for the work done on the North side of M street between 31st and 32nd streets and expired on the 14th day of January, 1903, for the work done on said M street between 32nd and 33rd streets. Excepting said work, these respondents accepted the pavements laid under said contract and called upon the complainant to repair and make good the said nonaccepted work and notified complainant that on failure to so repair and make good promptly the said work the District of Columbia would do the same and charge the cost thereof to complainant.

4 and 5. These respondents further answering deny the statements contained in the 4th paragraph of said amendment and supplement to the said original bill. They say that temporary tracks of said street railway were laid on the south side of M street between 32nd and 33rd street, but there were no defects caused thereby in said street, which could be traced in any way to the occupancy of said street by said temporary tracks. Said pavement was not greatly injured and deteriorated thereby, and could not have been materially injured for the said alleged cause among other things for the reason that not more than ninety square yards of said pavement came within the limit of said tracks. Respecting the allegation that injury was caused by illuminating gas permeating said pavement through their negligence or that of the Gas Company mentioned, they deny the alleged negligence and submit that under the general stipulations of the contract, the complainant became and was bound to ascertain any defects in the pipes of said Gas Company likely to cause injury to said pavement before and at the time Complainant entered into said contract.

Respecting said injury to said pavement by said gas, these respondents further say that practically no part of the same was caused thereby, no part of said pavement at the expiration of said five year term showed injury from such cause alone and a small part about ten per cent. thereof, appeared to be injured because of the effects of said gas combined with water. The remainder of the injury to the pavement was caused wholly by water which had seeped through the concrete, which resulted from the imperfect material with which the said pavement was laid or from the imperfect manner in which the same was constructed.

Further answering said paragraph these defendants say that temporary railway tracks have been laid repeatedly on asphalt pavements on other streets in the District of Colum-



bia, and that it has been demonstrated thereby that the laying and use of said railway tracks does not cause the said pavement to become injured, deteriorated or disintegrated; and they further say that, as a matter of fact, it is the common experience at the end of such five year period to find that such pavement requires repairs; and that the said guarantee provision in the said contract was, and is, intended to require the contractor to correct and make good said pavement at the end of said period; and they deny that the imperfect condition of all of the said pavement was caused by its being permeated with gas, and that the same at the end of said five year period would have been in perfect condition but for the laying

53 of said tracks and said gas, and that the defects which existed in it when said five year period expired were due wholly to said causes; and they say that the Engineer Commissioner of the District aforesaid, in good faith, directed the correction of the said work, and that the complainant refused to correct it, and that the said Commissioner did not accept the same in writing, whereby the complainant did not become entitled to have or receive the whole of the money or property of the defendant claimed under any circumstances, but the complainant was, and is, chargeable with the cost and expense of correcting said pavement.

These respondents admit that in response to their notice given by them to complainant to repair said pavement that complainant claimed substantially that such injury had occurred from the causes asserted by it, viz.:—the laying of said railway tracks and the escape of illuminating gas, and that they thereupon caused said pavement to be repaired on the North side of M street between 31st and 32nd streets and on both sides of said M street between 32nd and 33rd streets and that said repairs were completed about the fifth day of September, 1903. They admit the retention of said sum of \$3,829.82 and that the defendant Roberts officially holds thereof \$23.57 and that the remainder \$3,806.25 has been invested as alleged in bonds which are held by said Roberts in his official capacity.

6 and 7. These respondents deny the conclusions of law set forth in the 6th and 7th paragraphs of said amendment and supplement to said Bill.

54 These defendants say that the said bonds are entirely under the custody and control of the Secretary of the Treasury, who only can order the sale thereof, and unless he directs the Treasurer of the United States to sell the same said bonds cannot be sold; and that they have no control whatever over the sale of said bonds further than to request that the said Treasurer be directed to sell the said bonds, and

that a sum necessary to pay for said repairs be placed to the Credit of the District of Columbia.

These defendants further say that they are advised that if the said asphalt pavement was in point of fact injured as claimed by the complainant, yet under the said contract it was the duty of the said complainant to repair the same. They are advised that the complainant has a complete and adequate remedy at law against the District of Columbia to recover any sum of money due under said contract; and they say, as matter of fact, that they have no control whatever over the sale and disposition of said bonds except as aforesaid to request the Secretary of the Treasury to require the Treasurer of the United States to sell the said bonds.

Further answering, these defendants say that the said contract also provided by section ten (10) of the general stipulations thereof as follows:

“Failure to commence the work at the time specified, or to prosecute it thereafter in a satisfactory manner and at a rate of progress necessary, in the opinion of the Commissioners, for its entire completion within the limits of the time fixed by the contract, will be authority for the Commissioners to suspend the contractors from the work and employ other parties  
55 to complete it, or to employ additional labor to assist in its completion, or to annul the contract. All money due the contractors at the date of failure will be applied to the conduct and maintenance of the work; and any excess of cost over and above the contract price will be charged against the contractor and sureties, who will each and severally be held liable therefor.”

That thereby, because of the failure of the complainant to maintain the said pavement on said M street in repair, and to correct the same where and to such an extent as the Engineer Commissioner shall direct, and until the acceptance of the same by the Engineer Commissioner in writing (as provided in said guarantee clause of said contract hereinbefore set forth, which said acceptance as hereinbefore stated has never been made) the said District of Columbia and these defendants, as its Executive Officers, became, were and are entitled to apply all money due said contractor at the date of said failure including so much of said retent and guarantee fund as has been or may be acquired until such acceptance, and to have a sale of sufficient of said bonds for said purpose according to the true intent and meaning of said contract and the law applying to such retent or guarantee fund.

They are advised and therefore further object to the authority of this Honorable Court to control either their action respecting any request of the Secretary of the Treasury to direct

the Treasurer of the United States to sell said bonds or the action of the said Treasurer in making sale of said bonds.

And they say that the complainant has not in its said amendment and supplement to the said original bill exhibited against them any such cause as entitles it to any  
56 relief whatever in this Honorable Court, and they pray the same advantage of this suggestion as if they had demurred for want of equity to the Bill of Complaint filed herein.

And having fully answered these defendants pray to be hence dismissed with their costs.

HENRY B. F. MACFARLAND,  
HENRY L. WEST,  
JOHN BIDDLE,

*Commissioners, D. C.*

A. B. DUVALLE,  
E. H. THOMAS,  
*Sol'rs.*

DISTRICT OF COLUMBIA, ss:

Personally appeared Henry B. F. Macfarland, Henry L. West and John Biddle, who, being duly sworn, say:—that they are the Commissioners of the District of Columbia; that they have read the foregoing answer by them subscribed and know the contents thereof, and that the facts therein stated upon their own knowledge are true, and those stated upon information and belief they believe to be true.

HENRY B. F. MACFARLAND,  
HENRY L. WEST.  
JOHN BIDDLE.

Subscribed and sworn to before me this seventh day of January, 1904.

WILLIAM TINDALL,  
*Notary Public.*

[SEAL.]

*Memorandum.*

For Contracts annexed to this Answer of the Commissioners, see "Complainant's Exhibit Contract No. 2," page 313, of this record.

*Depositions on Behalf of Complainant.*

Filed July 28, 1905.

In the Supreme Court of the District of Columbia.

In Equity. No. 23,774.

BARBER ASPHALT COMPANY

vs.

DISTRICT OF COLUMBIA ET AL.

WASHINGTON, D. C., *June 29th*, 1904—11 o'clock a. m.

Met pursuant to agreement at the office of A. S. WORTHINGTON, Esq., Columbian Building, Washington, D. C., for the purpose of taking depositions on behalf of the complainant.

Present on behalf of the complainant, Mr. WORTHINGTON.

Present on behalf of the defendants, Mr. DUVALL.

It is agreed by and between counsel that depositions may be taken in the above-entitled cause on behalf of the respective parties within a reasonable time, without reference to the expiration of the time fixed by order of the Court for taking testimony.

At the request of counsel for the defendants the further taking of these depositions was adjourned until Friday, July 1st, 1904, at 11 o'clock a. m.

*Testimony on Behalf of Complainant.*

Filed July 28, 1905.

WASHINGTON, D. C., *July 1st*, 1904—11 o'clock a. m.

Met pursuant to adjournment, at the office of A. S. WORTHINGTON, Esq., Columbian Building, Washington, D. C.

Present on behalf of the complainant, Mr. WORTHINGTON.

Present on behalf of the defendants, Mr. DUVALL and Mr. THOMAS.

Whereupon, CLIFFORD RICHARDSON, a witness of lawful age, called by and on behalf of the complainant, having been first duly sworn, is examined,

By Mr. WORTHINGTON:

Q. Mr. Richardson, where do you live?

A. At New York City. My place of business is at Long

Island city. I am director of the New York Testing Laboratory.

Q. In a general way, what is the New York Testing Laboratory?

A. It is a business conducted in my own name for the purpose of examining materials of construction, and investigating general problems of chemical engineering.

Q. What is your business, or profession?

A. I am a chemical engineer.

Q. In a general way, state what has been your education and experience in your profession?

A. I am a graduate of Harvard College. Afterwards  
59 I studied in Germany. I went afterwards with the United States Geological Survey of Territories. I was then connected with the United States Department of Agriculture, as chemist, for nine years. I then served as Inspector of Asphalt and Cements of the District of Columbia for seven years. After that I practiced in Washington as a consulting chemist in regard to asphalt for two years. Afterwards I was superintendent of testing for the Barber Asphalt Paving Company for four years, and since that time I have been practicing my profession, as stated previously.

Q. As superintendent of tests for the Barber Asphalt Paving Company, what was the general nature of your duties?

A. I supervised the technical part of their work, in the construction of the pavements which they laid.

Q. What kind of pavements did that company lay?

A. They laid asphalt pavements.

Q. Was their business small, or extensive?

A. A large business. In the course of my experience I have had control of the laying of some 20,000,000 yards of pavement.

Q. Did your duties have, and has your experience had anything to do with the matter of the causes of disintegration of asphalt pavements?

A. I have made a very thorough study of the causes of disintegration of asphalt pavements, in all methods which might bring it about.

Q. Has your experience in that direction been both theoretical and practical?

A. Both theoretical and practical.

60 Q. Have you at any time made an examination of the asphalt pavement which was on M street northwest, in this city, between Thirty-second and Thirty-sixth streets?

A. I have.

Q. How often?

A. My first examination was made in November, 1902, at the

request of the Barber Asphalt Paving Company, to determine whether the disintegration was due to the effect of illuminating gas, and whether it was my recommendation that the company should replace the defects, or should decline to do so on the ground that it was not due to any cause for which the company was responsible. I recommended that nothing be done to the pavement, as it was plainly disintegrated by gas.

Q. At that time were you in the regular employ of the Barber Company, or was that after you had set up an independent establishment?

A. That was when I had my independent establishment.

Q. I wish you would state to us, in your own way, what observations you made there, and what led you to make that recommendation?

A. My recommendation was based upon my experience that I had had in observing asphalt surfaces that had been attacked by illuminating gas, not only in Washington, but in many other cities of the Union, during a period of at least twelve years.

By Mr. DUYALL:

Q. Was that report in writing?

61 A. It was not in writing.

Mr. THOMAS: We object to the report on the ground that it is a matter between persons not parties to this suit, being a matter between the Barber Asphalt Company and its agent, and is not evidence.

By Mr. WORTHINGTON:

Q. In your experience what are the indications tending to show that an asphalt pavement has been injured or is disintegrating through the effect of illuminating gas?

A. The strongest evidence of it is the fact that the bitumen contained in an asphalt pavement retains the illuminating hydrocarbons of strong odor which are contained in illuminating gas, which makes it possible to detect the presence of gas without difficulty. There is also evidence where the surface of the street is subjected to traffic, in the parallel breaking down of the material, in lines running in the same direction as the traffic on the street.

Q. As far as your experience goes does that appearance which you have just described come from any other source?

A. I have never seen anything of that description which could be due to any other source.

Q. What part of M street, between Thirty-second and Thirty-

sixth streets, did you personally examine on this date in November, 1902, when you were there?

A. My inspection was of the entire street, in regard to which there was anything in question, from Thirty-first to Thirty-sixth street, together with Mr. Richards, the superintendent of the Barber Asphalt Paving Company.

Q. At that time what was the condition of the street as to the pavement being down, or torn up?

A. Nothing was being done in the way of repairs. It was disintegrated at parts which I examined.

Q. On what parts of the pavement on M street between Thirty-second and Thirty-sixth street did you observe this disintegration?

A. At unidentified spots in different portions of the pavement, more especially on the south side.

Q. On both sides of the railroad track, or on one?

A. Both sides.

Q. In order to refresh your memory as to dates, I will show you a letter dated May 6th, 1902, addressed to the Vice-President of the Barber Company, and ask you if you wrote and sent that letter?

Mr. THOMAS: What is that letter? We object to that. The witness has not stated that he desires to have his memory refreshed. He has not asked to have his memory refreshed.

The WITNESS: The witness will so ask. (Referring to letter.) That is a letter written by myself to the Vice-President of the Barber Asphalt Paving Company.

Mr. WORTHINGTON: Show the letter to counsel on the other side so that they may know what it is you are using in refreshing your memory.

The witness did as requested.

By Mr. WORTHINGTON:

Q. Now, refreshing your memory by that letter, tell me what was the date of your first inspection of that part of M street?

A. All I have said about M street, as referring to November, 1902, should refer to May.

Q. Otherwise, what do you say as to the correctness of your statements, as far as you have gone?

A. They are materially correct.

Q. When you made your visit there in May, 1902, what if anything was done, either by you or by Mr. Richards, in your presence, with reference to taking any samples of the asphalt pavement?

A. I recommended that he employ somebody not connected

with the company to collect samples, illustrative of the state of the pavement.

Q. Was that actually done, as far as you know, in your presence?

A. It was not done in my presence.

Q. You do not know anything about it except from hearsay?

A. No.

Q. Did you inspect this portion of M street at any other time after May, 1902?

A. I visited it in November, 1902.

Q. What were the conditions then on the street?

A. Repairs were going on, and there was the same evidence of gas, only more so than on the previous occasion, because the surface was being taken up at the time.

64 Q. Do you remember on what parts of M street between Thirty-second and Thirty-sixth streets the surface of the pavement had been taken up when you were there in November?

A. I did not identify any particular locality because that was being done by the inspector of asphalts and cements, and I understood also by parties connected with the Barber Asphalt Paving Company. I remember one locality on the corner of Thirty-first street and M street, where I particularly smelt gas very strongly, at a time when Mr. Dow was present.

Q. This examination extended on both occasions from Thirty-first to Thirty-sixth street?

A. On both occasions.

Q. And what you observed you observed on that part of the street?

A. I observed that there was no question in my mind but that the street had been attacked by gas very strongly, and had disintegrated from that cause.

Q. What indications, if any, were there that there was disintegration there due to any other cause than that of illuminating gas?

A. I saw no evidence that it was due to any other cause, except that after the gas had attacked the asphalt and disintegrated it, it was then attacked by water.

Q. What are the conditions under which the evil effects of illuminating gas upon asphalt pavement will be most quickly shown?

A. It will, of course, be shown most quickly on  
65 mixtures that possess small density.

Q. How will the rapidity of the bad effects of illuminating gas on such a pavement be affected by the presence of dampness, or moisture?

A. It will undoubtedly be increased.



Q. Assuming, Mr. Richardson, that this pavement had been down nearly five years when it was in the condition in which it was when you saw it, what would you say as to whether or not that pavement would have lasted out the five year term but for the presence of illuminating gas?

A. I have no doubt it would have, as all other pavements laid at the same period did last out the five year term, with very minor repairs.

Q. Leaving out the question of the comparison with other pavements laid at the same time, what would you say from the appearance of this pavement and your knowledge of such matters, as to whether if it had lasted nearly five years under the conditions in which you saw it, it would have lasted the five year term if illuminating gas had not been there and had not affected it?

A. The mixture laid on M street was submitted to me for my approval, by samples, at the time the pavement was laid. From the results of that examination I could see no reason to think that the character of the work was not as satisfactory as any that was done during that same year. In fact I believe I stated, and it has been quoted, that I said it was better work than was usually done in the District.

Q. Were samples of pavements laid on the other streets during the same period when this pavement was  
66 laid by the Barber Company, submitted to you?

A. They were all submitted to me.

Q. What did you do with the samples that were submitted to you?

A. They were taken to pieces with the purpose of determining the percentage of bitumen, filler, and the grading of the sand.

Mr. DUVALL: Is he speaking of samples elsewhere than here?

Mr. THOMAS: He is speaking of mixtures in advance of the pavement being laid.

Mr. DUVALL: This particular one?

The WITNESS: All pavements laid by the Barber Company here in Washington at that time.

Mr. THOMAS: I object, on the ground that the samples referred to by the witness are not sufficiently identified as being any part of the pavement laid on M street; and if those results were in writing, or were taken down at the time, we are entitled to have them and not to take the statement of the witness.

By Mr. WORTHINGTON:

Q. To what extent, if at all, have you observed the effects of illuminating gas on these asphalt pavements in other cities than Washington?

Mr. THOMAS: Objected to, upon the ground that the hypothetical question does not embrace facts in this case, as to the kind of pavement laid on M street?

67 A. I have observed the action of gas on very similar pavements laid in many other cities of the country, more especially in the city of Louisville, where there were evidences of very similar appearances and methods of disintegration.

Q. Have you observed it in other places in Washington, on any street between Thirty-second and Thirty-sixth?

A. The first place I ever observed it in Washington was on the corner of I and Seventeenth. There is also a very prominent illustration of it in the plaza in front of the Arlington Hotel.

Q. Do you mean now?

A. At the present time. The characteristic parallel lines are seen there.

Q. Have you been on M street between Thirty-first and Thirty-sixth, in this city, recently?

A. Within the last three days.

Q. What observations did you make then bearing upon this question of illuminating gas there?

A. My observations showed that where disintegration has gone on there, in almost every case the asphalt surface mixture smells very strongly of gas, and a piece of this material which I have here, was taken on Wednesday morning.

Q. Last Wednesday morning?

A. Last Wednesday morning. And now, on breaking it open you get nothing but an asphaltic smell, as far I am able to perceive.

Q. Who took that up from the pavement?

A. I took it up personally.

68 Q. At what point?

A. Between Thirty-fifth and Thirty-sixth streets, on the north side.

Q. Can you locate it more definitely by anything on the street?

A. It is on the north side, a few feet east of a position opposite a grain shop.

Q. Where there is leakage from gas pipes of illuminating gas, under an asphalt pavement when it is laid down, what length of time is ordinarily required for disintegration to manifest itself on the surface?

A. It will vary with the character of the base underneath the surface. If the base is a dense one and does not contain cracks the action of gas may be delayed for four or five years.

If it is a porous base it sometimes develops in a year. In the present case, under my observation, the repairs which were made there in 1902 show very strong evidence of the action of gas at the present time. But that is due to the fact that the base when the repairs were made was already permeated by gas, and it was consequently in condition to be acted on much more rapidly than it would have been if the base had been like the surface, quite new.

Q. You have said as to this place where you picked a sample from the pavement last Wednesday that you smelt illuminating gas. What appearances were there on the street, if any, that indicated the presence of illuminating gas?

69 A. The parallel cracks and general disintegration where water had begun to collect in the spots where the pavement had given way—it being a notorious fact that pavements which are attacked by gas are so disintegrated that they are much more porous and open to the action of water than they would be under any other circumstances.

Q. Was anybody with you when you made this observation last Wednesday, and if so, who?

A. At that time there were present Dr. Cushman of the road material laboratory of the Department of Agriculture, and yourself.

Q. When you were present there at the time they were removing the whole surface of the pavement, what was your observation as to the part of the pavement which was torn up and loose?

A. I did not identify any locality, except one at the corner of one of the streets—I think Thirty-first—where a drugstore is situated, on the northwest.

Q. What, if anything, did you observe on either of your visits as to evidences of moisture at this part of M street?

A. There were decided evidences of the action of moisture on the asphalt; but as I have previously stated in my testimony, this action was initiated by the fact that the surface mixture had been very much deteriorated by the previous action of illuminating gas.

Q. How would the fact that a pavement had been disintegrated by illuminating gas tend to establish a condition of moisture?

70 A. It softens the asphalt cement and allows it to break down under traffic, and in that way loosens the bond and permits the infiltration of water, which acts on the mixture.

Q. From the surface, you mean?

A. From both sides; more, however, from the inside, because the gas acts on that side more than on the upper side. But

the fracture of the upper surface in the parallel lines will also admit water, and will allow decided disintegration from that direction.

Q. Where illuminating gas has entered a pavement of this kind, what if any effect does it have upon the concrete which is visible to the naked eye?

A. It generally gives it a black color, where the binder course comes in contact with the concrete.

Q. In that connection, what observation did you make on this occasion?

A. The usual black color was observed at many points.

Q. Did you observe anything on that part of M street that would tend to carry off water that would accumulate there?

A. I did not observe anything of that nature?

Q. Did you observe the railroad conduits?

A. There are railroad conduits there. I did not examine them particularly.

Q. What effect, if any, on an asphalt pavement, does the making of holes by driving spikes in it, have?

A. It has a very disturbing influence on it, by breaking the bond in the pavement and admitting the water, which prevents the renewal of the bond, which would happen in dry positions. The action of water on asphalt where it is due to any inferiority of the mixture, is much more rapid than that of illuminating gas, so that in my opinion had the disintegration of the pavement in Georgetown been due to the action of water, it would have been manifested much earlier in the history of the pavement than it was.

Q. Suppose that temporary railroad tracks had been spiked down along this street, the spikes being as large as your finger, say, and two or three feet apart, and there being several rows of them along the street: What would you say as to that having a beneficial or an injurious effect upon the pavement?

A. My opinion on the subject was filed with the Engineer Commissioner some years ago, when I was an official of the District; and it was that it would relieve the contractor from the necessity of keeping that pavement in repair, because it would certainly injure it decidedly.

Mr. DUVALL: We object to the answer as a conclusion of law, and a legal opinion.

By Mr. WORTHINGTON:

Q. Without any reference to what your opinion was then or what report you made, will you tell us what is now your judgment on the subject?

A. My opinion is the same as I stated at that time.

Q. Please state it again, as the other answer is objected to.

72 A. The spiking of tracks to an asphalt pavement is decidedly deleterious, especially in any place where water or illuminating gas would obtain by this means an additional ability to attack the surface.

Q. In your observations made on this part of M street, what if anything did you observe as to whether the disintegration which you have spoken of as indicating the presence of illuminating gas, was on the lower part of the pavement, or the high ground, or both?

A. On both sides.

Q. I am speaking of this. As we all know there is a slope down toward Thirty-sixth street, and there is higher ground at about Thirty-fourth street.

A. I thought you referred to different sides of the street.

Q. No. I refer to the high ground at Thirty-fourth street, or the low ground at Thirty-sixth.

A. There seemed to me to be quite as much disintegration at the high ground, as though the gas had risen in that direction.

Q. Now, suppose there is an asphalt pavement on a street of the ordinary kind, and there is a single leakage from an illuminating gas pipe underneath it: To what extent, if at all, will the effect of the gas be shown, or may it be shown, at a point remote from the place where the leak occurs?

A. The action of gas has been found to break out first at points two or three hundred feet distant from the leak  
73 in the main. Therefore excavations to determine whether the deterioration is due to leakage from the main immediately under the spot which is disintegrated, may not furnish any evidence of the fact that it is so.

Q. Where an asphalt pavement has been affected by, and disintegrated by illuminating gas, is or is not the smell of gas always found?

A. It may not be always found, as is illustrated by this sample which I have taken. Exposed to the air for a long time, at a temperature which is moderately warm, the gas will disappear so that it cannot be detected by many nostrils whose capacity for smell is not very acute.

Q. How long could the smell of gas last in a piece of the surface of an asphalt pavement that has been taken up, and which is affected by gas, and in which the smell of gas is noticed when taken up?

A. If it is sealed, as in the case of the exhibits which are on the table, it may be retained there for many years, and will

serve as evidence of the fact that the pavement has been acted upon by illuminating gas.

Q. You had nothing to do personally, I believe, with the taking up and preservation of the exhibits you refer to?

A. I had not.

Q. Are you familiar in a general way with the literature on the subject of the causes of disintegration of asphalt pavements?

74 A. I am familiar with the limited literature on the subject.

Q. Has your attention been called to a report on that subject, made by Inspector Dow to the District Commissioners, for the year ending June 30th, 1899, the report itself being dated August 18th, 1899?

A. I am familiar with it. It is at page 111.

Q. I would like to read a passage in that report from page 111 of the printed document, and ask you to what extent, if at all, you agree with the conclusions therein stated.

Mr. THOMAS: We object to the use of the book as evidence in that way, on the ground that evidence of that kind is hearsay. If Mr. Dow is called as a witness and counsel desires to ask him about any paper he has written we do not object.

By Mr. WORTHINGTON:

Q. The passage referred to is as follows: "Disintegration of pavements from the absorption of illuminating gas, escaping from leaky gas pipes or mains under the pavement: There are several streets in the city being ruined by this means, and it appears to be a common thing in all cities having gas. The pavements are affected in very much the same way as when disintegrated by coal-tar binder, except the fine cracks, running parallel with the street, make their appearance some time before the pavement begins to crowd. Pieces of the surface mixture taken up smell very strongly of illuminating gas, and in some cases the gas can be ignited by applying a match  
75 to the under surface when it has just been taken up. In nearly every case enough gas will be given off by heating a small piece of the affected pavement in a tube to have it flash by igniting. As it has been doubted by some that this disintegration is really due to illuminating gas, I have made a most thorough investigation of the subject and believe have positively proven that gas is the cause."

I ask you to what extent, if at all, you agree with those conclusions?

A. I am in entire accordance with the conclusions expressed in the report of Mr. Dow.

Mr. THOMAS: We move to strike out the answer as immaterial and irrelevant.

Cross-examination.

By Mr. THOMAS:

Q. As I understand you, you have looked at this M street pavement on three different occasions?

A. On three different occasions.

Q. Once in May, 1902, once in November, 1902, and about three days ago?

A. Yes, I have also looked at it on numerous other occasions which I have not mentioned.

Q. Will you tell me the parts of the pavement, particularly designating the points, of your inspection made in May, 1902?

A. I inspected the entire pavement in May, 1902.

76 Q. Will you particularly point out and tell me the identical places where you found evidence of illuminating gas?

A. I cannot do so.

Q. Did you make any memorandum of the spots or points or places where illuminating gas was present at that time?

A. I did not.

Q. What method did you use in making the inspection? How did you inspect?

A. By ocular inspection, and inspection with my nose.

Q. Then you went along and smelt the street, as I understand?

A. Wherever I found a disintegrated portion of the street I took portions up with my knife and smelt it.

Q. Did you take a sample from every portion of the pavement that was rolling?

A. I did not. I stated that I only took samples from portions that were disintegrated.

Q. Do you call a rolling, disintegrating?

A. I do not. I call it displacement.

Q. Might there not have been a disintegration under the rolling which you did not notice, if you did not take a sample?

A. Of course.

Q. You did not place any of these samples under any chemical test or analysis, did you?

A. Nothing at all—not considering it necessary.

Q. Can you tell me how many samples you took?

77 A. I can not.

Q. Can you approximate it?

A. I cannot. I took at least one sample wherever there was a disintegration.

Q. Was it one or ten places?



A. Oh, more than ten; less than 100.

Q. But you can come no nearer than that?

A. No nearer than that.

Q. Now, the next time you went there was in November, 1902, for the purpose of inspection, as I understand it?

A. Inspection and observation of the work which was being done in the way of repairs at that time, by the District of Columbia, or by its order.

Q. Who was present at that time?

A. I went with Mr. Richards of the Barber Asphalt Paving Company, and met Mr. Dow, Inspector of the District, at that point.

Q. Tell me between what streets you made that inspection?

A. Between Thirty-first and Thirty-sixth streets.

Q. Will you tell me what inspection you made?

A. I picked up pieces of the pavement that was being removed, smelt them, and walked over some of the work that had been done previously in the way of repairs.

Q. How long previously?

A. I do not know.

Q. Where did you pick up these particles, or samples, or pieces?

A. I did not identify the places. It was in the area  
78 covered by the contract in question.

Q. Which contract?

A. There are two contracts, which I do not identify as to location. I merely know that the street was paved from Thirty-first to Thirty-sixth street under these two contracts.

Q. You subjected these pieces that you took at that time to no chemical analysis or test?

A. I did not consider it necessary. It was self-evident on the surface of the material that it was attacked by gas, as based on conclusions drawn from my very extensive experience with such action.

Q. Gas was the sole cause, you say?

A. Gas was the sole original cause, without doubt.

Q. Was there any other inducing cause?

A. No other inducing cause.

Q. Was there any other cause?

A. Of the deterioration of the pavement?

Q. Yes.

A. Certainly. After the pavement was disintegrated by gas, water entered into it, and that disintegrates it still further. It is a secondary cause.

Q. You do not see the process of disintegration; how can you determine which took place first, or which operated first, the water or the gas?



A. The gas, because you find places where the action of the gas is going on, and no disintegration has yet taken place; where, for instance, rolling has occurred. I saw  
79 pieces that were cut out, that had been displaced in the street. There was no water action, but still the action of the gas had begun, and the action of water would occur in that place, that had rolled, when the disintegration of the surface, or of the under portion of the pavement, had become so great as to admit the water. That is self-evident.

Q. I am talking about the places where you took samples. How could you determine that the disintegration was first caused by the gas, and last by the water?

A. I have just described to you, sir, how I did it.

Q. In no other way?

A. No other way.

Q. As I understand you, these parallel lines that you have spoken of, never occur in any other defects of a pavement, other than those caused by gas?

A. Sometimes by a weak base; but there the lines are more almond shaped, or alligator-skin shaped, and they do not lay parallel.

Q. Do I understand you to say that these lines on M street are exactly parallel?

A. I would not say they are mathematically parallel, no; but for all purposes of necessity and description they are.

Q. How near parallel do you mean, when you speak of the lines being almond-shaped?

A. I mean when the ends come together. In these lines they do not come together. The alligator skin, you  
80 will see, has that shape—the ends come together.

Q. Do none of the lines on M street come together?

A. I would not say they do not eventually; but they run parallel for a very much longer time than they do when the alligator-skin formation is found.

Q. Do you say there are no conditions where you could not tell the difference between the causes which create the almond-shaped cracks and the parallel lines?

A. No conditions where I could not tell the difference between them?

Q. Are there not some conditions where you cannot tell the difference of the causes of the two?

A. There would be no difficulty for me on M street, certainly. There might be other causes, but I think M street is the one we have under consideration.

Q. I understand you to say that you took this sample you have produced here, two or three days ago?

A. I did.

Q. And that now there is no smell of illuminating gas which you can detect in it?

A. Not distinctly so. No; even on breaking it open.

Q. Your conclusion is—

A. My conclusion is that there is strictly an asphaltic odor in that sample at the present time.

Q. Your conclusion from that is that illuminating gas will completely escape from an asphalt pavement?

A. It will diffuse. The rate of diffusion would depend entirely upon the temperature to which the material  
81 is exposed. Diffusion, according to the well-known laws of physical chemistry relating to gases and solids—this being a solution of gas and solid, or a gas and liquid, if you regard the asphalt cement as a liquid and not as a solid, which is probably the more correct view—must essentially and necessarily go on during all the time that it is exposed to the atmosphere; so that it is merely a question of the time element when the gas must all disappear from this material.

Q. The time element in this case, with this sample, is a few days?

A. It appears to be; because, if you will observe, the sample is so very small that it rapidly diffuses, whereas samples of the size of those contained in the bottles may take two or three months to diffuse.

Q. Generally speaking, is it not a fact that it takes illuminating gas a long time, a very long time, to evaporate from an asphalt pavement, when it is once impregnated with it?

A. I should not be willing to accept that proposition. It depends upon the size of the piece, and the conditions to which it is subjected.

Q. Take a piece four inches square; how long would it take?

A. You cannot find a piece four inches square in M street. The thickness is only two inches.

Q. I do not mean that. I am trying to specify some size of which you can speak.

82 Mr. WORTHINGTON: Do you mean a cube?

Mr. THOMAS: I mean four inches of surface.

By Mr. THOMAS:

Q. Say it be a cube amounting to a thickness equal to four inches. How long would it take, when it has once been impregnated with illuminating gas?

A. I should say it would depend very much on the percentage of gas absorbed in the material when it was removed from the influence of the gas. If it had been subjected in the laboratory to the action of gas in a bottle, and remained in that bottle,

loosely stoppered, it might not lose the smell of gas in months or years; but if it was subjected to the action of water and a warm summer temperature, both at the same time, the odor of gas might disappear, at a mere estimate, I should say in a month or two—that is, if the original source of the gas is diverted in some other direction, which frequently is the case.

Q. Did you submit this sample you have here today to the action of water?

A. It had been submitted to the action of water, from the fact that the pavement was depressed at the point where it was taken.

Q. That is not the question. You stated that you smelt illuminating gas when you took it up. Now, I ask whether, after you took it up, you subjected it to the test of water?

A. The test of water is a question that is too indefinite for me. Do you mean to say, did I put it in water?

83 Q. That is what I mean to say.

A. I did not. Placing a sample of the surface mixture in water will tend to remove the gas very much more rapidly than if it is left in the air, because diffusion then goes on still more rapidly.

Q. Take a piece of asphalt four inches square, and one inch deep, impregnated with illuminating gas. How long would you say the gas will remain in it?

A. That is a question I cannot answer. You do not premise what the concentration of the solution of gas in the asphalt would be, and the conditions under which it would be exposed.

Q. You cannot premise that of the M street pavement, can you?

A. We do not have to premise things. We merely examine conclusions there.

Q. Can you tell how long gas was in the M street pavement, or any part of it?

A. No; we merely find it there, and find the pavement disintegrated. That is all we care for.

Q. Taking then this piece four inches square and one inch deep, in the same condition as the M street pavement, and the samples you saw and smelt, how long would the gas remain in it?

A. I could not say. It depends on the conditions to which it is exposed.

Q. Exposing it, putting it on a roof and exposing it to the wind and rain and the atmospheric conditions?

84 In what season of the year?

Q. In all seasons of the year—for a year, in this climate.

A. I should say the gas would be very apt to be evaporated in that time. I have never had experience with such conditions.

Q. Have you ever made a study of the subject as to how long the smell of gas would remain in Trinidad asphalt?

A. I have not made an extended study of it. I have observed in the case of numerous samples collected and kept in sealed jars that the gas remains for at least a year, or longer, but disappears almost entirely on exposure after three or four months, and persons who break samples of the asphalt surface and try to detect the odor in it, find trouble in obtaining any experience in the matter, by the confusion of the asphaltic smell and that of illuminating gas.

Q. What was the mixture in this pavement on M street?

A. Sand, filler, and asphalt cement.

By Mr. WORTHINGTON:

Q. Filler is what?

A. Fine mineral matter.

By Mr. THOMAS:

Q. Is any petroleum used?

A. It is.

Q. A pavement of that kind would have a smell of the petroleum, would it not?

A. Not necessarily. I should say it would have no smell of petroleum, the petroleum smell being quite mild,  
85 and quite covered up by that of the asphaltic bitumen.

Q. It is not possible to confuse a gas with the smell of petroleum?

A. It is quite impossible.

Q. What is the smell of asphalt? How can you describe the asphalt smell, by itself? What would you say you smell there?

A. I should prefer to submit a sample for the benefit of the court, it being quite impossible to describe it.

Q. Is it not a disputed question as to whether illuminating gas will injure an asphalt pavement?

A. I have never heard the question disputed by anybody except by those whose interest it was to defend themselves for the action of the same. Impartial witnesses will acknowledge that illuminating gas does disintegrate asphalt surfaces.

Q. Do you say it is universally conceded that illuminating gas will disintegrate asphalt pavements?

A. No; I said it is universally conceded by those whose interests do not demand the denial of the thing, on their part, that it was so.

Q. In other words it is universally asserted by the asphalt

companies that illuminating gas will injure an asphalt pavement. Is that it?

A. And as universally claimed by gas companies and those interested in the other side of the question, that it will not.

Q. So that it is a disputed question, is it not?

A. Yes; it is a disputed question.

86. Q. When you find illuminating gas disintegrating an asphalt pavement, do you mean to say that it renders it so that it will crumble?

A. It softens the asphalt cement to such an extent that the mixture breaks down.

Q. Will the presence of illuminating gas alone cause a pavement to break down and disintegrate?

A. It will; especially when the base is such as those used in Washington, which are not entirely rigid. I think I should state here that part of the deterioration on M street is due to the fact that the base is one of natural cement, and it is not calculated to support the pavement in heavy traffic; consequently some of the deterioration at that point is due to the fact that a proper base for the pavement was not specified in the contract.

Q. Did you ever see any portion of that base that is not rigid?

A. I have never seen any base of that description that was absolutely rigid.

Q. Did you see that base laid?

A. No; I have never seen anything but the surface; which showed that it was very porous, because water had been seeping up through it to a certain extent—not more so than with other similar bases. All natural cement bases are porous, and all absorb water.

Q. What bases do not absorb water?

A. Bituminous bases do not absorb water.

Q. Are they practical bases?

87. A. We are laying them now in a number of cases, on top of Portland cement bases to start with, though asphaltic concrete on Portland cement base is now considered to be the most desirable form of construction in an asphalt pavement.

Q. Did you know what this base was on M street?

A. At the time I examined the street?

Q. Yes.

A. I did from inspection.

Q. Did you go down far enough to determine what the base was?

A. You do not have to go down at all. You see it from the surface.

Q. You can see the underneath part from the surface of the concrete?

A. No, but if you see the outside of an orange, you know what is inside. It is done in the same way.

Q. On the theory that you can tell what is inside of the orange?

A. Yes; there are some good oranges, and some bad ones.

Q. This was Trinidad asphalt, was it?

A. I do not know personally that it was.

Q. Let me ask you whether that is impervious to water?

A. It is as impervious as any other asphalt; yes, when it is properly used.

Q. Is it as impervious as rock asphalt?

88 A. Quite so—more so. But I would qualify that remark by saying that the mineral aggregate of the mixture must be so regulated as to make it so. I have recently, in view of some recent controversy on the subject, had a sample of Trinidad asphalt mixture immersed in water in my laboratory for nine weeks. It shows no evidence whatever of being attacked in the slightest degree by the water. If the same asphalt were placed in the hands of others, inexperienced in its use, it might, under the same conditions, be attacked; but when it is properly used, with properly graded mineral matter and proper filler, it is not attacked at all.

Q. Would you say this pavement is impervious, up there on M street?

A. I should not.

Q. Will you say that water alone would disintegrate that pavement?

A. The constant action of water alone would disintegrate any asphalt pavement. That is illustrated by this fact. I have personally laid pavements in London, England, in a very trying climate—much more so than that of Washington. There Trinidad asphalt has withstood the ravages of the fogs and rains of London weather for ten years, without disintegrating, where Bermudez asphalt, laid on the same street before it was laid with Trinidad, did not resist the action of the fog and trying weather for six months. Yet some Bermudez asphalt is not

89 acted on at all by water in the laboratory, where Trinidad asphalt is acted on under the same conditions; showing that laboratory conclusions have no bearing on practical results in street paving. Laboratory work will aid in drawing certain conclusions; but those conclusions must be confirmed by practice before they are of any value.

Q. Do you know whether they are using Trinidad asphalt in the streets of Washington now?

A. I understand they are not.

Q. Do you know how long the use of Trinidad asphalt here has been abandoned?

A. I do not.

Q. Do you or not know that one of the reasons for its abandonment was that it would disintegrate on account of water?

A. I know that the narrow policy and ignorance of the authorities is the cause of its abandonment.

Q. Do you know of such a book on highway construction as that of Austin P. Byrne?

A. I do.

Q. Do you agree with this statement of Mr. Byrne, which I take from his book entitled "A Treatise on Highway Construction," published in 1896, at page 138—

A. You had better name the edition.

Q. Third revised and enlarged edition, published in 1896, from section 224:

90 "Although pure asphaltum is absolutely impervious and insoluble in either fresh or salt water, yet asphalt pavements in the continued presence of water are quickly disintegrated. Ordinary rain or daily sprinkling does not injure them when they are allowed to become perfectly dry again. The damage is most apparent in the gutters and adjacent to overflowing drinking fountains. This defect has long been recognized, and various measures have been taken to overcome it, or at least to reduce it to the minimum. In some cities ordinances have been passed seeking to regulate the sprinkling of the street, and in many places the gutters are laid with stone, while in others the asphalt is laid to the curb and a space of 12 to 15 inches along the curb is covered with a thin covering of asphalt cement."

Do you agree with that statement?

A. In certain of its applications. I do not, however, agree that Mr. Byrne is any authority, or that his opinions are of any great value. He is merely a collector and compiler of books and facts. He has never had anything to do with the asphalt paving industry.

Q. Do you agree with this part, that "asphalt pavements in the continued presence of water are quickly disintegrated"?

A. The quickness with which asphalt pavements disintegrate in the presence of water, depends on the character of the mixture; and not only on the character of the mixture, but on the way the sand is graded, and the amount of filler present and the character of the filler. As I have already shown a Trinidad asphalt mixture made of asphalt which is acted upon by water in the laboratory, can be so constructed by proper grading and the use of proper filler, that in practice it is not attacked by

water in the street at all, unless it is submerged under  
91 it for months at a time. As evidence of this we may cite  
many thousands of yards of Trinidad asphalt pavements  
on Fifth avenue, in New York City, where the base being en-  
tirely rigid and satisfactory for the support of the surface,  
there has never been any deterioration, except at minor points,  
in gutters where water has stood, which has necessitated any  
repair to this pavement. Mr. Byrne's conclusions are drawn  
from inferior mixtures, laid under conditions which never  
should have been allowed to exist, and he consequently saw the  
general application. If the District of Columbia has pave-  
ments with a base that is porous, and does not provide in the  
specifications that drainage shall be put in along the curb, or  
have such provisions made to keep water away from the pave-  
ment as should be made in proper forms of construction, then  
of course the asphalt will be more attacked than it would be  
under the conditions existing in Fifth Avenue, New York; but  
the proper remedy for this situation is not the abandonment  
of the asphalt, but a change in the specifications which will  
make it possible to use this asphalt satisfactorily. It recalls  
their position when I first went into the business, when all the  
places in which pavements were used, were attracted to the use  
of petroleum residuum oil. The Inspector of Asphalts and Ce-  
ments, in one of his reports, stated that he believed this was  
one of the causes of the disintegration of pavements. While  
this may be the case where the residuum is not of proper qual-  
ity, or where it is not properly use, we know today, and  
it is a thoroughly well accepted fact, that the residuum  
92 of petroleum, is one of the most valuable elements in  
pavements. It has been shown by Professors Berkell  
and Jackson, that paraffin petroleum residuum is the least at-  
tacked of any bitumen that we know of, because it consists of  
stable paraffin hydrocarbons. Some asphalts are attacked  
more than other- if used in water, in open and loose condition.  
This I know from the fact that of the pavements under by  
supervision in New York, which are laid of Trinidad, and  
Bermudez asphalt, and California asphalt, in regard to the re-  
pairs, with which I am acquainted, of those pavements, it costs  
less to repair Trinidad than any we lay, even on the heavy  
traffic streets. A very large amount of the faults in pavements  
are due to the character of the base which supports them. In  
my experience, with the companies with which I am connected,  
it has been shown that at least 99% of the defects in pavements  
are due to the character of the base on which they are laid. I  
mean pavements laid and used in the proper way. So that any  
conclusions that Trinidad asphalt is any way responsible for  
the conditions existing on M street in Washington, are in my



mind not justified. I am additional- confirmed in my opinion by the fact that I have seen, in the last two or three years, repairs made, with what I understand to be Cuban asphalt, which has suffered as much from gas in one year as the Trinidad asphalt did in four.

93 Q. Will you be kind enough to examine the specifications of the two contracts in this case, and tell me whether the base mentioned in those contracts for these pavements, is sufficient to prevent the injury of the pavement by water.

Mr. WORTHINGTON: I object to the question on the ground that the witness is not supposed to know what are the contracts in the suit, and request counsel to identify in some way the particular passages, and particular papers he refers to.

Mr. THOMAS: In order to meet the objection of counsel, I incorporate in the question the following from the specification, being Exhibit attached to the answer of the defendants filed to the amendment and supplement to the original bill:

"5. FOUNDATION.—Upon the bed thus prepared there will be laid a six (6) inch foundation of concrete, as directed, made of broken stone and gravel, sand, and natural cement in such proportions that the quantity of gravel will be equal to the volume of voids in the broken stone, and the sand and cement, mixed in the proportion of one (1) part cement and two (2) parts sand, will be 20 per cent in excess of the volume of voids in the combined gravel and broken stone."

By Mr. THOMAS:

Q. Now kindly answer the question?

A. It would not unless proper drainage provisions along the curb were provided also.

Mr. THOMAS: Counsel for the defendants state that there is no drainage provided in this contract.

94 Mr. WORTHINGTON: Counsel for complainants submits that the contract will speak for itself on that, as on other subjects.

By Mr. THOMAS:

Q. Do you recommend in order to detect the presence of gas in an asphalt pavement, that the sense of smell be the sold method employed?

A. If the sense of smell detects illuminating gas, no other method of determining its presence is necessary, as the odor is so characteristic as not to be readily confused, except in a case where there is so little present that an asphaltic odor might be mistaken for it, in which case some more refined method

might be necessary. If, however, the odor of illuminating gas is distinct, no further test is necessary.

Q. I understood you to testify in your direct examination that the rapidity of disintegration depends on the base?

A. That is one condition.

Q. What do you say of the base mentioned in the contract I have read, as to whether disintegration would be likely to follow rapidly with a base constructed in the manner described in the contract to which your attention has been called?

A. It is a porous base, one made of natural cement, and consequently, in that respect, would be one which would contribute to the diffusion of gas, and would permit it to readily attack the asphalt surface.

Q. It would also permit water to rise into the pavement, would it not?

95 A. It would, as it does in other cases of the action of illuminating gas. Where that is not manifested, the action of water is much slower.

Q. Can you tell me whether on *M* the *M* street pavement, the action of the water commenced first—taking into consideration the character of the base—or the action of the gas commenced first?

A. I have no doubt that the slight action of water began first; but that that was not of such a serious character as to produce essential disintegration. It was only after the action of illuminating gas that the water was enabled to penetrate the mixture and destroy it, as it has done.

Q. This is simply your opinion. You do not know; you did not observe it?

A. Only in so far as I have observed the behavior of samples which we have treated with gas in the laboratory.

Q. You treated no part of this pavement?

A. No.

Q. You only give it as your opinion in the case that the action of the water was slight in the first instance, and that the gas afterwards became impregnated in the pavement. That is all you are giving in this case, is it not?

96 A. No; not at all. I say that these natural cement bases are porous, and water comes up to the bottom of the binder and softens it as a general rule. I observed it in *M* street when the pavement was cut open. The top of the hydraulic concrete base was moist and spongy, and water would undoubtedly begin at once to act upon the under surface of the pavement, the binder; but that action for five years would not be so serious as gas disintegration for a month. But the two go hand in hand. The gas acts upon the pavement very rapidly, and loosens up the mixture to such an extent that

the water can act upon it more than it would before. We would have good conditions if no illuminating gas had been present. Experiments have been made which show that very conclusively.

Q. Your opinion is not the result of any inspection of the processes of Nature going on in these pavements?

A. It certainly was the result of my observation of the fact that there was illuminating gas there, and the base was in a moist condition.

Q. That is to say you found by the sense of smell, in May and November, 1902, at some spots unlocated, on this pavement, evidence to your nostrils that there was illuminating gas there. That is it, is it not?

A. At spots of a generally disturbed condition, throughout the pavement; that there was illuminating gas, and that the base was moist.

Q. How did you find the presence of illuminating gas? How do you detect it?

A. By my nostrils, as I have stated on several occasions. It can be detected, of course, by taking portions of the mixture, immersing it in water, and allowing the gas gradually to come back, and collecting it. I have seen gas collected in that way.

97      Would it not be necessary for you, in order to ascertain the fact whether gas actually escaped in M street, to find out where the leak in the gas main was?

A. It would be quite unnecessary.

Q. Would it not be necessary for you to have some digging done in the street to find out whether gas was escaping on M street?

A. Quite unnecessary.

Q. What did you mean by saying that gas manifests itself remotely, two or three hundred feet from the leak?

A. Gas will diffuse itself through the easiest channels, and the easiest channel may be one which leads out three hundred feet from the place where the leaking pipe is. This is due to differences in the consistency of the soil, or other conditions may bring it about.

Q. Finding a moist base, gas would go in that would it not? Gas will go in a porous base?

A. That is exactly what I say; gas will immediately deteriorate the pavement there.

Q. Can you tell me where the gas gets in it; whether it is from M street or not?

A. I do not know, and I do not care. It is gas, and that is all we care about. It comes from somewhere, and it has destroyed our pavement. The pavement would not have been

destroyed if it had not been for the gas. That is the whole situation.

Q. Did you recommend to your people that M street be dug up?

98 No; I did not recommend that any investigation be made to find out where the gas came from. I should saw it would be perfectly useless. I have seen so many excavations made in Louisville and elsewhere to see where the leak comes from, that our knowledge on that matter has been increased so that we know the leak may be so far from the point of disintegration that it is useless to dig for it in that neighborhood.

Q. You stated on your direct examination that in 1902 you observed decided evidences of moisture. How much moisture did you observe?

A. I should have to have the testimony read to me in order to get the context.

Q. Never mind. How much moisture did you observe in 1902, either in May or November?

A. Decided moisture in the base.

Q. What do you mean by that?

A. I mean that the hydraulic concrete base, the voids in the base, were saturated with moisture, in the way that a sponge may be saturated with water.

Q. It was easily detected?

A. Yes.

Q. Was that the case at every place where you examined the pavement?

A. I would not say that.

Q. Was it at many places?

A. Several places.

99 Q. Several is an indefinite number. Do you mean eight or ten?

A. More than one, and less than one hundred.

Q. Recently, when you examined these places, did you find decided evidences of moisture there?

A. On Wednesday, do you mean?

Q. Yes.

A. The pavement was not removed as low as the base on Wednesday, but moisture was contained in the disintegrated portions, either from watering, or from showers of the previous evening. The pavement was evidently attacked by water on all the occasions when I visited there, but attacked in a way that it would not have been, had not illuminating gas been present. And this proved by the fact that some of the pavements laid in the same year are not attacked in the same way as M street is attacked.

Q. Do you know this to be a fact of your personal knowledge, that pavements laid during the same year have not been attacked?

A. No, sir; only generally. I could not name streets and locations.

Q. Then you cannot assert that it was true, can you?

A. I suppose I could not. That can be proved by other witnesses.

Q. Do you not know that it is a fact, however, that pavements laid by the Barber Asphalt Paving Company of this same kind of asphalt, in other locations of the city where there was no illuminating gas present, disintegrated?

100 Mr. WORTHINGTON: Do you mean under the same contract, or at some other time?

By Mr. THOMAS:

Q. At about the same time.

A. I do not.

Q. Why is a period of five years fixed as the life of an asphalt pavement?

A. I never knew it was.

Q. Why is a five year period, or any period adopted if the pavement is absolutely solid and absolutely good?

A. Because you want to pay a certain price for that amount of guarantee. If I buy 100 pairs of shoes, I can get a wholesale price. That is one thing. If I buy three pairs, I pay a higher price.

Q. Is it because asphalt is a perishable article?

A. No. We have fifteen years guarantee on Trinidad asphalt in New York, and have never had any trouble.

Q. Why did you have to make such a guarantee?

A. Because they wished to pay for it. They can pay for a 5 year guarantee, a ten year guarantee, or a fifteen year guarantee.

Q. Is it not a fact that every city in which asphalt pavements are laid, requires a guarantee?

A. Yes sir.

Mr. WORTHINGTON: I think you will find in the organic law of the District, that this five-year guarantee is provided by law.

By Mr. THOMAS:

101 Q. Are you in the employ now of the Barber Asphalt Paving Company?

A. I am retained by them; yes.

Q. Are you not retained by them to examine their mixtures?

A. I am.

Q. And to supervise their work?

A. I am.

Q. When you left the District employ, as I understood it, you went into the employ of the Barber Asphalt Paving Company?

A. I had an office of my own here in Washington for two years. I went in the employ of the Barber Asphalt Paving Company in 1896.

Q. And ever since then have you not been in the employ of the Barber Asphalt Paving Company?

A. The first of January, 1900, I severed my connection with the Barber Asphalt Paving Company, and filed a certificate in the county court of the County of Queens, New York, with the business would be conducted under the title of the New York Testing Laboratory, as required by law, in my name.

Q. When did your general retainer from the Barber Asphalt Paving Company commence?

A. The first of January, 1900.

Q. At the same time you filed your certificate. From 1896 to 1900 you had been previously employed by them?

A. As superintendent of tests, with the Barber Asphalt Paving Company.

102      Redirect Examination.

By Mr. WORTHINGTON:

Q. How long has that Fifth Avenue pavement been done in New York?

Mr. THOMAS: Objected to as not any criterion in this case.

A. From Washington Arch to 58th street, it has been down from seven to eight years.

Q. You have several times spoken of a filler in asphalt pavements. I wish you would state it a little more explicitly than you have, for the benefit of those not familiar with the business, what you mean by "filler."

A. Any fine, impalpable, mineral powder is regarded as a filler if it is mixed with bitumen. It serves to stiffen it, so that a softer bitumen can be used than would otherwise be the case.

It is admitted by counsel that the sample which the witness says he took from M street last Wednesday, and which he has

referred to as a small piece, is about as large as a good-sized almond, including the shell.

CLIFFORD RICHARDSON,

*By the Examiner by consent.*

Subscribed and sworn to before me this — day of —, A. D. 1904.

\_\_\_\_\_,  
*Examiner in Chancery.*

103 A recess was thereupon taken until 1.20 o'clock p. m.  
After recess.

ALLERTON S. CUSHMAN, a witness of lawful age, called by and on behalf of the complainant, having been first duly sworn, is examined,

By Mr. WORTHINGTON:

Q. Doctor, state your full name, please?

A. Allerton S. Cushman.

Q. And your residence?

A. Washington.

Q. And your occupation, at present?

A. I am chemist, and assistant chief of the Division of Tests of the Department of Agriculture.

Q. What chemical education and experience have you had?

A. I graduated as a chemist at the Worcester Polytechnic Institute, in 1888. I went abroad and studied in Germany; at the Bridewell School of Mines and Metallurgy; and studied one semester at Heidelberg under Professor Benson. I then came back to this country, and for two years and a half worked at mining engineering, in Colorado, New Mexico and California. Then for a year I was chemist in the iron works in St. Louis, Missouri. I then became instructor at the Washington University in St. Louis, where I remained for four years.

Q. Instructor in what?

104 A. In chemistry. I then went to Harvard University as assistant to Professor Jackson; and also became a graduated student and took my higher degrees as Master of Arts, and Doctor of Philosophy, and Chemistry. I then went to Bryn Mawr College, and took the associate chair in chemistry there for two years. I then became chemist for the Road Material Laboratory, in the Bureau of Chemistry, Department of Agriculture. The Secretary of Agriculture has recently made this laboratory into a division, which is now

the Division of Tests, of which I am the assistant chief, and chemist.

Q. In the position which you now hold, what if anything, have you to do with the matter of experimenting as to the material used for the construction of roads, and of streets and pavements?

A. I have had to examine a great many different sorts of materials used in the building of roads and streets. Among the various sorts of materials that have come under my notice, asphalt and other bitumens for use in paving materials, have been examined.

Q. What is the purpose of the examinations which you have made, in that capacity?

A. The purpose of the examination is to enable citizens of the United States to make intelligent selection of road material, for use in construction.

Q. Have you at any time made an examination of the asphalt pavement on M street, northwest, in this city.

A. I have.

Q. Between Thirty-first and Thirty-sixth streets?

105 A. I have made an examination of the street between Thirty-first and Thirty-sixth streets.

Q. When?

A. I visited it on the fifth of November, 1902; but at the time that I was called into the case those portions of the street that were under renewal had been torn out and removed as far as Thirty-fourth street. The morning I was first called into the case they were tearing up just west of Thirty-fourth street, and I only had an opportunity of inspecting the torn-up material and the still standing pavement between Thirty-fourth and Thirty-sixth streets, on the north side of the car tracks.

Q. Do I understand that you examined part of the street where the material had been torn up?

A. I examined the street, but there was no material there.

Q. The material had been taken away?

A. The material had been taken away. There was none of it left.

Q. Are you familiar with the chemical composition and action of the ordinary illuminating gas of cities, and especially of that which is used in this city?

A. Yes, sir.

Q. When you were there on the Fifth of November, 1902, what was the purpose of your examination? What examination did you make, and what was the result of it?

106 A. I was called into the case and instructed to examine the pavement that was being torn up, to see if, in my judgment it had been acted upon by illuminating gas.



I took samples every fifty feet from Thirty-fourth to Thirty-sixth street, from the broken up pavement, as far as that went, and took up portions of the pavement beyond, where the workmen had not already torn it up. Every sample that I procured smelled strongly of illuminating gas, and I may say that in the area about where the asphalt was being turned over by the workmen's picks, there was a very strong smell of illuminating gas.

Q. Did you make any examination of the pavement at all, east of Thirty-fourth street, where the surface had been taken up and removed?

A. I examined the base, the concrete base; but there was no asphalt left.

Q. What, if any, indications of the action of the presence of illuminating gas did you discover there?

A. I could not say about that. The material had all been removed.

Q. What did you do with the samples which you took up from the street west of Thirty-fourth street?

A. Immediately on getting them to my laboratory, I sealed them up in the usual way, with paraffin, and those samples are here as an exhibit. Two of the samples I opened, in order to repeat Mr. Dow's experiments as to the actual presence of illuminating gas. I used Mr. Dow's method substantially, slightly changed, and I obtained from those samples, illuminating gas without doubt. They responded to the chemical  
107 means of recognizing illuminating gas and burned with the characteristic flame of illuminating gas.

Q. Please produce the exhibits to which you have referred.

The witness here produced jar marked "No. 1, No. 5, 1902, samp. from cor. M and 35 Sts., 3' from gutter, put in open air Dec. 8, Dec. 15, to see if it loses smell of gas."

Also jar marked "No. 2, Nov. 4, 1902, n. side M St., 10 ft. W. W. C. L. 34th; tooting in brick gutter."

Also jar marked "No. 3, Nov. 4, 1902, N. side M St., 111 W. W. curb line, 34th St. 3 S. N. curb."

Also Jar marked "No. 4, Nov. 4, 1902, N. side M st. 200 W. W. C. L. 34th midway between curb and track."

The above-mentioned jars and their contents are offered in evidence by counsel for complain-t, and are marked respectively Exhibit Jar 1, Exhibit Jar 2, Exhibit Jar 3, and Exhibit Jar 4.

By Mr. WORTHINGTON:

Q. Doctor, as to jar No. 1, tell me what the sample in it is?

A. It is one of the samples which I opened on December 8th—

Q. One moment. State first where it came from?

5—1728A

A. This was one of the samples which I took on November 5th, and it came from the corner of M and Thirty-fifth street, three feet from the gutter, on the north side of the car track.

On December 8th, 1902, I opened it and left it open until December 15th, in the open air. That is to say, out of doors. On December 15th there was no perceptible smell of gas from this sample. It had all disappeared. This was ascertained by referring it to the sense of smell of a number of people about the Bureau of Chemistry.

Mr. THOMAS: Objected to as hearsay.

By Mr. WORTHINGTON.

Q. Did you smell it yourself?

A. I could smell no gas myself at the end of that time.

Q. Do you remember who the other persons were to whose olfactory nerves you submitted it?

A. Yes, I remember them.

Q. Who were they?

A. I submitted it to Mr. Page.

Q. Give his full name, please.

A. L. W. Page. I submitted it to my assistant, Mr. Wallace C. Burnett. I submitted it to another assistant in our laboratory, Mr. W. J. Jordan.

Q. What do you say as to the smell of illuminating gas about this sample in Jar 1, when you took it up from the street?

A. It smelled very strongly of gas. I could find no sample of the dug-up asphalt that did not smell strongly of gas.

Q. What do you say as to the contents of Exhibit Jar No. 2?

A. When that sample was put in the jar it smelled quite strongly of illuminating gas.

109 Q. State first where it was taken from?

A. From the north side of M street, ten feet west of the curb line of Thirty-fourth street. It is part of the toothing in the brick gutter. When the sample was put into the bottle and sealed, it smelled strongly of illuminating gas. It has not been opened since.

Q. It is still under seal, is it?

A. It is still sealed, and has been locked up in my personal possession, in my laboratory, ever since.

Q. As to the sample in Exhibit Jar No. 3. Where was that sample taken from?

A. No. 3 was taken on the north side of the car tracks on M street, 114 feet west of the curb line, near Thirty-fourth street, and three feet south of the north curb.

Q. What do you say as to the indications of illuminating gas about that sample?

A. When the sample was put in here it smelled strongly of illuminating gas.

Q. Has it remained under seal in your possession?

A. It has never been opened.

Q. Now, as to the contents of Exhibit Jar No. 4; from what point was that sample taken?

A. Sample No. 4 came from the north side of M street, 200 feet west of the west curb line of Thirty-fourth street, midway between the curb and the car track. When this sample was put into this container, it smelled strongly of illuminating gas, and has not been opened since.

110 Q. And has been in your possession?

A. It has been in my possession.

Q. Sealed up?

A. Sealed up.

Q. You have said of each of these samples, that when put in the jar it smelled strongly of illuminating gas. When put into the jar by whom?

A. Put in the jar by myself, on the ground, on M street, in the location designated, and on the dates designated, and it was closed up. It was sealed by me with paraffin wax immediately on my return to the laboratory, on the same day.

Q. About how long after it was taken from the street?

A. I should think about half an hour.

Q. Did you make any examination with reference to the presence of illuminating gas, or the action of it, on the south side of M street, between Thirty-fourth and Thirty-sixth streets?

A. I observed the streets there, on the other side, and it seemed to me to be in very fair condition.

Q. What was the condition of the north side of M street, between those streets, when you looked at it?

A. It was very bad. It has the longitudinal striation lines which are characteristic of the action of gas on asphalt. It was very weak and was giving away under traffic.

Q. What do you mean by the characteristic lines indicating the presence of gas?

A. I mean that where asphalt is gassed the bitumen is  
111 softened, and the traffic passing over it usually breaks it in a sort of striated lines in a direction parallel to the traffic.

Q. Is there more than one kind of illuminating gas used in cities, ordinarily?

A. Illuminating gas varies considerably in its analysis. Some cities allow larger percentages of so-called water-gas than others. Water-gas is carbon monoxide. But essentially, the illuminating gas in every city is more or less identical.

Q. Are you aware from observation, as to how it is in this city, especially in that part of the city formerly known as Georgetown?

A. I am familiar with its analysis. I have read a great many analyses that have been made of it, and Mr. Dow has published several analyses of it, which I have read, and with which I am familiar.

Q. So far as the action of illuminating gas upon asphalt pavements is concerned, is there anything singular about the gas in Georgetown?

Mr. THOMAS: Objected to as incompetent. The same objection is also made to the previous answer of the witness.

The WITNESS: I see no reason why gas in Georgetown should be different from the illuminating gas in any other city.

Q. What is the chemical operation, in effect, of illuminating gas, as applied to an asphalt pavement, when the pavement is on the street or in place, and the gas finds its way to it?

112 A. All the investigations that have been made and published upon the subject, which are not many, have gone to show that the heavy hydrocarbons of the gas—that is the illuminants; those ingredients in the gas which make it burn with an incandescent flame are called the hydrocarbons—attack the bitumen in the asphalt, and they act upon it in such a way as to soften it. That weakens the bond that the bitumen has formed upon the sand grains which go to make up the bituminous concrete, and consequently the pavement gives way under traffic.

Q. So far as you know is there any other cause of the disintegration of asphalt pavements, which causes the same appearance in the pavement as that which you have described in this pavement as resulting from the action of illuminating gas?

A. Yes; if a pavement were not properly supported by its base; if an asphalt pavement were laid right directly upon a road without foundation it would undoubtedly break in lines along the lines of traffic. That is only common sense.

Q. Suppose it has a proper base?

A. If the asphalt pavement is properly supported with a proper base, I think experience has shown it is a satisfactory pavement.

Q. Have you made an examination of this pavement on M street at any other time than on November, 1902?

A. I have visited the pavement on several occasions since, but not officially. I officially examined the pavement  
113 on last Wednesday morning.

Q. When you say "officially" do you mean at the request of the counsel for complainant?

A. Yes; at the request of counsel.

Q. What did you find there last Wednesday, that bears upon the question of illuminating gas?

A. I found that the pavement that was being renewed in November, 1902, had weakened again in exactly the same way, showing the same parallel striation, with every indication of a gassed asphalt pavement. I thereupon took up a sample from the surface of the pavement, and found that it smelled strongly of illuminating gas. That sample is offered in evidence here.

Q. Is that the sample in this little bottle which I have here?

A. Yes.

Q. And it has been in your possession ever since?

A. Ever since.

Counsel for complainant here offers in evidence the bottle just produced and identified by the witness, bearing upon it a label upon which is written "Sample taken June 29, 1904, at 9.40 a. m. Smelled strongly of gas. A. S. C.", and the same is marked Exhibit "Bottle."

By Mr. WORTHINGTON:

Q. When did you put this sample in this bottle?

A. On my return to the laboratory, probably half an hour after the sample was taken.

Q. And when you did that did you close the bottle  
114 in any way?

A. No; I did not seal it. I simply put that stopper in it loosely.

Q. You put a cork in it, as it is now?

A. Yes.

Q. Take the cork out now, and tell me whether you can smell illuminating gas in it?

A. (After doing as requested.) Yes, it smells very strongly of illuminating gas.

Q. Please pass it to counsel on the other side. From just what position on the street did you take this last mentioned sample?

A. I took it from a place where the longitudinal striations had so weakened the pavement that it was possible, with the instruments we had with us, to very easily take up the soft surface and obtain that little sample. It was in the neighborhood of Thirty-fourth street, almost opposite a grain store.

Q. Which side of Thirty-fourth street—east or west?

A. On the north side of the car track.

Q. Which way from Thirty-fourth street?

A. Just a little way west.

Q. Did you observe the sample which Mr. Richardson took about the same time?

A. Yes.

Q. What relation does the place from which you took your sample bear to the place from which he took his?

115 A. They are practically the same samples.

Q. Were you present when Mr. Richardson took up a small piece which he produced here this morning?

A. Yes, sir.

Q. And you see it here, now?

A. Yes.

Q. Do you remember whether you smelled that at the time he took it up?

A. I smelled it at the time he took it up.

Q. With what result?

A. It smelled strongly of illuminating gas.

Q. Please smell it now (handing sample to witness).

A. (After doing as requested.) I can perceive no odor of illuminating gas.

Q. Have you broken open the piece for the purpose of testing it, now?

A. I broke the corner off.

Q. Do you smell any gas?

A. No, sir.

Q. You stated a little while ago that you had, as I understood you, submitted some samples taken from this street to the tests referred to by Mr. Dow in some of his publications.

A. Yes, sir.

Q. Where did you get the samples with which you made those tests?

A. I had other samples similar to these, and I had to sacrifice some of the samples to these tests. I used samples  
116 Nos. 5 and 6 of my series, for those tests.

Q. Did you put them in jars at the same time you put the others in jars?

A. I put them in jars exactly like those (indicating).

Q. Were they sealed up when they were put in the jars?

A. Sealed up.

Q. When did you open the jars to make the tests?

A. Several days later; perhaps a week.

Q. Did you make any record of the result of those tests?

A. In my notebook as usual; yes, sir.

Q. Have you your notebook?

A. I haven't it with me.

Q. Without reference to your notebook, have you a clear recollection of what the result was?

A. Very clear.

Q. In the first place, state exactly what the tests were?

A. I put the samples in water and heated the water with a lamp underneath it, and the gas came off and raised to the surface of the water. By inverting a funnel full of water over the surface of the water, it was quite possible to collect the gas that came off of the sample and to obtain it in a little receiver in which it could be examined. Out of that receiver it can be caused to take fire and burn like any ordinary gas flame.

Q. What was the result of this experiment?

A. The result of the experiment was that I collected  
117 gas from the samples and burned it. I set fire to it.

Q. Was there any other person present, observing or participating in these experiments?

A. My asistant, Mr. Wallace C. Burnett, was present, and observed the burning of the gas which came off of the asphalt.

Q. Now, what have you to say as to whether or not the gas which came from those samples and which burned, was illuminating gas or some other gas?

A. It was undoubtedly illuminating gas, because it had all the characteristics of illuminating gas.

Q. What characteristics?

A. It had the characteristic odor; it burned with the characteristic flame of illuminating gas. I did not consider it worth while to analyze it. Mr. Dow had already done the same test with gassed asphalt, and had made complete analyses of the gas which rose off from the gassed asphalt, and had proved that it was illuminating gas, slightly changed to be sure, by the mutual reactions that took place, but none the less illuminating gas.

Q. To what temperature did you subject these samples in obtaining the gas which you burned?

A. To not more than 100 degrees Centigrade.

Q. As a chemist familiar with these matters, will you tell me whether the sample from the pavement, which you used in the test, if there had been no illuminating gas in it, could have produced the result which you obtained?

A. It could not.

118 Q. When you made the examination of the pavement between Thirty-first and Thirty-sixth streets, in November, 1902, what indications, if any, did you observe, of water or moisture at any place between those points on the street?

A. The concrete sub-base which was exposed east of where the pavement was being taken up, was damp in spots. The weather was hot and dry.

Q. Was this moisture observed on the slope of the hill, or on the hill-top, or at both places—these spots?

A. On the slope of the hill.

Q. Were there any indications there from which you could

tell whether or not the moisture which you observed had got there from the surface or from beneath the pavement?

A. I do not know that I could prove the source of the water. I may have formed an opinion.

Q. If there was anything there from which an intelligent opinion even could be formed, I wish you would state it.

A. It was at the time of the year when we were going through what is ordinarily known as Indian summer. It was very hot and dry, and there had been no natural cause from above to wet that asphalt as far as I know, on top. So I imagine that the wetness came up through the concrete base.

Q. What did you observe, if anything as to the color of the top surface of the concrete base, where the surface had been removed?

A. The concrete base was a good deal stained, with a brownish stain.

119 Q. Is the injurious effect of illuminating gas upon these asphalt pavements increased or diminished or affected at all by the presence of moisture or water?

A. Yes; it is undoubtedly true that gas acts more quickly upon the asphalt of a bituminous concrete under the action of water and gas combined.

Q. Well, I believe it is agreed that water or gas will affect them injuriously.

A. Yes.

Q. But my question is whether, when the two together act, whether the injurious effect would be more rapid, or greater, than it will be with either alone?

A. It will be greater. So far as the value of laboratory tests are concerned with these practical out-door matters, I may say that is a thing that can be shown in the laboratory with the samples of asphalt concrete mixtures that are soaked in water through which gas has first been led and allowed to bubble up a certain length of time. That gassy water will attack a concrete mixture in the laboratory more quickly than water alone will do so.

Q. How is it as to the comparative rapidity of the injurious effects of gas and water combined, and that of gas alone?

Q. From what you observed of this pavement on M street in November, 1902, and assuming that it had then been down nearly five years, what would you say as to whether it  
120 would have kept in good condition to the end of the five years if illuminating gas had not been there to cooperate with whatever moisture was present?

Mr. THOMAS: Objected to as not stating the facts, and therefore not a proper hypothetical question.

*U. I should say that gas & water combined more quickly than gas alone.*



A. I know of no reason why it should not have stayed there, unless it had been affected by gas.

Q. What do you say as to whether these concrete foundations that you observed there on M street, are or are not pervious to water?

A. I think that concrete foundations made according to those specifications are not impervious to water.

Q. I suppose I may say without danger of being charged with leading the witness that all asphalt pavements will disintegrate in time, under any conditions.

A. I do not know of anything in Nature that does not. Rocks are considered to be very enduring, but those of us who study rocks know that they are disintegrating under the action of water and gases continually.

Q. What you have said probably covers it, but I would like to ask you your opinion as to whether the action of water or of gas and water combined, upon such an asphalt pavement as this, would be affected at all, and if so in what way, by driving iron spikes at intervals of two or three feet, in several rows, along the length of the pavement?

Mr. THOMAS: Objected to as not a statement of the facts, and therefore not a proper hypothetical question.

121 A. I can only say that, as it is universally acknowledged that the idea of applying an asphalt covering to a street is to make a water-proof, impervious covering to the foundation, that any hole that is cut into it, to let the water in, will have the same effect as making a hole in any other water-proof covering, such as a water-proof coat for anything, or any person.

Q. Can you tell us anything as to the distance which illuminating gas that has escaped from a service pipe under the street will travel?

A. I have no proof of the fact, but I would be inclined to the opinion, from observation, that it is probably true that the gas which leaks into the porous sub-base of an asphalt pavement and goes underneath the bituminous blanket which covers the base, will travel for long distances, by the well-known laws of gas diffusion, and will appear at the surface wherever it finds a weak spot.

Q. What would you say as to the possibility or the probability of gas having brought about a disintegration of an asphalt pavement, and yet when the pavement was taken up there might be no smell of illuminating gas in the pavement?

A. My experience has been that asphalt that has been pretty well broken up, as it is by pick work when it is being removed

—that those pieces of asphalt lose the smell of illuminating gas very rapidly.

Q. Could it be that gas would go into the pavement and practically injure or destroy it, and afterwards change its direction and go somewhere else?

A. In my opinion that would be possible.

122 Q. Were you present when I read this morning to Mr. Richardson a passage from a report made by Mr. Dow, the District Inspector of pavements?

A. Yes, sir.

Q. What do you say, as to whether or not you agree with Mr. Dow's conclusions in that passage?

A. I most assuredly agree with Mr. Dow. Mr. Dow had proved conclusively that gas mains can leak underneath the pavements without the gas company, or in fact anyone who makes the ordinary tests upon the pipe, ever becoming aware of the leak. Mr. Dow has proved that capillary leaks can occur along gas mains in different places, where from a practical man's standpoint there is no leak in the service pipe.

Q. Do you mean by that a leak that could be detected by any ordinary methods used by gas companies?

Yes, sir.

Cross-examination.

By Mr. THOMAS:

Q. Referring to the sample which you took on the 29th day of June, 1904, will you be kind enough to tell me how you know it was taken from a place that had been repaired subsequent to November, 1902?

A. Because I took it from almost the identical spot where I stood and saw the asphalt torn up in November, 1902.

Q. And where was that place?

123 A. That place was on M street just west of Thirty-fourth street, on the north side of the car track, about three feet from the gutter line.

Q. How far west of Thirty-fourth street?

A. I evidently mean Thirty-fifth street—that steep street that goes up there, paved with cobble stones.

Q. How far west of Thirty-fifth street, then?

A. Well, I should think it might possibly have been 20 to 40 feet. It was right opposite a grain store there.

Q. Do you mean west of the west line of Thirty-fifth street?

A. I should think so; yes.

Q. On the north side of M street?

A. Yes.

Q. And how close to the curb?

A. About three feet.

Q. I understood you to testify that a concrete foundation, as called for by the specifications read to you, as existing on M street, was not impervious to water? Did I understand you correctly?

A. Yes, sir.

Q. Why is that so?

A. Because it is a weak mixture made with an inferior kind of cement—natural cement.

Q. Are such foundations made out of any hydraulic cement impervious to water?

A. There is probably no cement concrete perfectly impervious to water, but some are much more permeable by water than others.

Q. You say, as I understand, that this was made out  
124 of an inferior quality of hydraulic cement.

Mr. WORTHINGTON: No; he said the specifications called for an inferior quality.

Mr. THOMAS: I did not ask you about that.

The WITNESS: I said it was an inferior quality, in my opinion.

By Mr. THOMAS:

Q. Why was it? What quality of hydraulic cement was it; do you recall?

A. I know it was a natural cement; and I know natural cement is universally acknowledged not to be equal, in its hydraulic qualities, with Portland cement.

Q. Will you please be kind enough to explain that, so that we will understand what the difference is, respecting those qualities, between a natural cement and Portland cement? In other words, why is one impervious and the other not?

A. Portland cement is found by experience not to be so pervious to water as natural cement.

Q. Do you mean to say that Portland cement is a product this is made up of certain elements by manipulation, or process, and that natural cement is found in nature? Is that what you mean?

A. No, sir; certainly not. Natural cement is made by igniting at high temperature and roasting a silicious rock that is found. Portland cement is made by very carefully mixing limestone and a silicious material like clay, and burning it. Portland cement is universally acknowledged all over the world  
125 for construction purposes to be stronger and better material than natural cement.

Q. That is precisely what I wanted to get at. Taking a base such as you find in this contract as indicated on the M

street pavement, would you expect to find, in view of the traffic on that pavement, the characteristic parallel lines that you speak of, irrespective of the presence of illuminating gas?

A. I should say that in that case, you would be more apt to find ordinary displacement there than you would to find it

breaking up in those peculiar looking striated lines, that my experience is are usually indicative of gas action.

Q. But might it not be also true that you would find those parallel lines existing in pavements composed of a base made up of the inferior quality of natural cement of which you have spoken?

A. I admit that if a pavement is not properly laid on the proper foundation, under traffic it is very apt to break up in the lines of traffic.

Q. That is to say, it would have these characteristic lines of which you have spoken?

A. I have not sufficient data to say as to whether lines would form from breaking an asphalt pavement, from the action of a weak base, or ordinary water action, are exactly the same as those striations which appear as the result of gas action.

Q. Therefore you could not say it would not be so?

A. I could not say that.

126 Q. Professor, how long have you resided in the District of Columbia?

A. Three years.

Q. Will you be kind enough to state whether or not M street, where this pavement was laid, was not one of the principal thoroughfares of that part of the city of Washington known as Georgetown?

A. I should think it was one of the principal thoroughfares.

Q. You have spoken about the action of illuminating gas in softening the bitumen composing the pavements. Will you be kind enough to explain what you mean by the bitumen in that connection?

A. I mean this. In an asphalt there is an ingredient or characteristic that is viscous and soft. It contains an organic matter which is known as bitumen. That bitumen, that soft, viscous matter, acts as a cement upon the particles of filler. Those particles may be natural in the asphalt as it is mined or taken from its deposit, or they may have been put in there by the manufacturers of pavements afterwards, and thoroughly distributed. So that the bitumen is separate, in that sense, from the filler, which is any earthy matter with which it is mixed.

Q. Do you know what this asphalt was mixed with in order to give it these adhesive qualities, of which you speak?

A. No, I do not know anything about that.

127 Q. Do you know anything about the impurities of Trinidad asphalt, as coming from the place of deposit?

A. I have no data on the relative merits of the different grades or sorts of asphalt.

Q. Before this asphalt was attempted to be refined, do you know the percentage of impurities that existed in it?

A. What do you mean by impurities?

Q. I mean organic matter and vegetable matter, clay and other material.

A. I do not know that there has ever been any standard of purity set for an asphalt. I do not see how I can answer that question.

Q. Have you ever known of asphalts being spoken of, respecting their degree of purity?

A. I have heard of its being so spoken of, but that does not mean that there is any standard of purity for asphalt.

Q. There is no standard, I suppose, as we have a standard of weights and measures; but do you know what fluid was mixed with this asphalt before it was laid down, in order to give it this bituminous quality of which you speak?

A. I have no accurate information on that subject. I believe it was mixed with what is ordinarily known as a petroleum residue.

Q. There has been great difference of opinion as to whether that aided or weakened a pavement, has there not?

A. There has been a good deal of controversy over that subject.

128 Q. Can you tell whether that mixture would have been better had it been pure asphalt fluid rather than a petroleum residuum?

A. No, sir; I cannot answer that question. I doubt very much if anyone can answer it correctly.

Q. Sometimes asphalt is also mixed with coal-tar, is it not?

A. I know they may use coal tar in mixing pavements.

Q. Now the strength or adhesive qualities of an asphalt pavement would depend upon the refining of it would it not, in the first instance, before it is put down on top of the base?

A. Not necessarily.

Q. You mean to say that if it was burned so that it would not have proper cohesive qualities, it would make no difference?

A. I mean it would make no difference upon the material you are speaking about in the present instance. The different bituminous deposits found on the surface of the earth are very variable in their natures, extremely so; and if I may say it, there is no subject at present being investigated by chemical engineers about which so little has actually been determined, or as to which so little is obtainable in text books.

Q. Is it not a fact that it has taken years of experiment in order to determine the proper way to refine asphalt before it is laid down as a pavement?

129 A. I do not think that is anything except a question of personal opinion. There have never been any demonstrations made. Speaking from the standpoint of a perfectly neutral person, who had never been in the employ of any consumer or producer of asphalt, I may say that I have yet to be convinced that there is anything of that nature that is of any use.

Q. I do not quite understand what you mean when you say you are yet to be convinced there is anything of that nature.

A. I mean to say it has never been demonstrated to my satisfaction that any treatment of any special brand of asphalt is going to fit it for service that it is not fitted for before that treatment.

Q. Are there not present in every asphalt certain salts that have to be taken from it before it is used?

A. No, sir; not in every asphalt.

Q. Take the Trinidad asphalt. Do you know about that?

A. I happen to know that Trinidad asphalt has soluble salts in it; yes.

Q. Is that favorable to its adhesive quality?

A. In my opinion that does not make the slightest bit of difference. The soluble salts in Trinidad asphalt are about two-tenths of one per cent. and in my opinion it would not make the slightest bit of difference whether you washed the soluble salts out, or whether you did not.

130 Q. How about the presence of water, mineral water in Trinidad asphalt? What have you to say about that?

A. What do you mean? In what condition; at the Lake, do you mean?

Q. I mean when you take it from the lake, whether it does not have to be refined, and this water driven out of it before it can be used?

A. I have no data on the subject.

Q. Do you know of the fact that such mineral water exists in the Trinidad asphalt?

A. I have never visited Trinidad Lake, but I have read that it does.

Q. Is that beneficial to it, without refinement and without its being driven out?

A. I do not think it is beneficial to it.

Q. Do you know whether or not that has been regarded as a detriment to that kind of asphalt?

A. It has been considered so by certain people.

Q. You, of course, do not know the condition of the asphalt when it was laid on this base, prior to November, 1902, do you?

A. No, sir.

Q. You do not know when this asphalt commenced to disintegrate, do you?

A. No, sir.

Q. You do not know whether water had so become a part of it as to injure it before the gas was present in it, do you?

131 A. I should not think that was the case. I have no means of knowing that water was not there before the pavement was taken up.

Q. You have no means of knowing that water was not in the pavement before there was any evidence of gas in the pavement?

A. I have no means of knowing that.

Q. Will you be kind enough to state whether water will injure a pavement composed of Trinidad asphalt?

A. No, sir; I will not answer that question.

Q. Why not, please?

A. I do not draw distinctions between one brand of asphalt and any other brand of asphalt.

Q. Then I will state any brand of asphalt. What will the effect of water be on any brand of asphalt?

A. The effect of water on any brand of asphalt, if it gets into the concrete, would be to weaken the bond. If the pavement is not properly laid so that it has a water proof surface, and water works in among the grains, it will weaken the bond of the bitumen on the grains and the pavement will deteriorate. If it were not for that it is highly probable that asphalt pavements would last forever, except for the actual wear and tear of traffic upon them. Every material in nature is subject to that deterioration, under the action of water and the reactions that the presence of water makes possible.

Q. Have you actually experimented with water and salts combined on Trinidad asphalt?

132 A. Yes, sir.

Q. Have you experimented with water and gas combined on any other kind of asphalt?

A. No, sir.

Q. If illuminating gas, after impregnating an asphalt, evaporates from it so as to leave no indication of its presence, will the asphalt be of no further service, or will it be of any service?

A. The asphalt after it has been attacked by water or by the action of gas and water combined, tends to form a crumbly material, which has not the adhesive qualities of the natural bitumen; but the asphalt is not necessarily in my experience,

thereby destroyed. Under certain conditions it can be made to come into a condition in which it will again bond.

Q. I understand you to say that the action of gas upon asphalt tends to soften the bitumen. Is that right?

A. Yes.

Q. You do not mean to say that it absolutely destroys it, or disintegrates it, do you?

A. It disintegrates it; yes.

Q. Absolutely so?

A. That depends on how far the action has gone.

Q. What do you mean then by saying it does not absolutely destroy the bond.

A. It will finally destroy the bond if the action goes on. The sticky bitumen changes to a sort of powdery mass that does not have the sticky, adhering qualities any more after it has been acted on for a prolonged period by water  
133 and gas.

Q. Then the extent of destruction and deterioration depends on the length of time during which gas has acted on the material. Is that it?

A. Yes, sir; that is true of all reactions, except explosions of nitro-glycerine.

Q. Which will act most quickly on asphalt, gas or water?

A. Gas.

Mr. WORTHINGTON: I suppose when you use the term "gas" you mean illuminating gas?

Mr. THOMAS: Oh, yes.

By Mr. THOMAS:

Q. Will you be kind enough to state whether or not, at the time you were taking samples in November, 1902, Mr. Dow was present?

A. Yes, Mr. Dow was there.

Q. Do you recall, during that time, of any place that Mr. Dow directed your attention to where there was no smell of illuminating gas?

A. Yes, sir; I remember a place higher up the street, I think on the south side of the street. By higher up the street, I mean further east—where Dr. Dow called my attention to the fact that there was no smell of gas. My recollection is that the pavement had been removed from that place, though, and I could not get any samples from that place. Mr. Dow said he could not smell gas on that place, higher up. Of course I have not any data on the subject, because I did not get samples there.

134 . Q. But you remember there was one place that he called your attention to?



A. I do remember that.

Q. Were there not samples of the pavement that had been taken up laying on the street, large in size—pieces of concrete and asphalt that had been dug up?

A. I do not remember any asphalt. Of course the concrete was there. But I cannot remember any asphalt. I remember talking the matter over with Mr. Dow at that time, though, and taking issue with Mr. Dow at that time, as to whether or not a pavement that had been previously gassed need necessarily smell of gas when it was taken up at some future time.

Q. Has your experience with reference to asphalts been confined to laboratory experiments and such study as you have devoted to the subject?

A. Yes, sir; mainly, as well as from observation that I have made since I have been living in Washington, which has a great many miles of asphalt streets, and where changes and repairs are continually being undertaken, and where my interest in road problems leads me to look into that subject whenever I get an opportunity.

Q. Will you be kind enough to state whether you have ever been actually engaged in superintending the construction of any asphalt pavement?

A. No, sir.

Q. Will you be kind enough to state whether, during the time you have been engaged in chemical work you have  
135 made a specialty of the subject of asphalts used as pavements?

A. No, I have not specialized that. It comes in under the ordinary road problems that enter our laboratory, and inasmuch as physical tests for asphalts are not entirely and thoroughly worked out so that there are any standard tests, why each man must examine asphalt as best he can.

Q. Will you be kind enough to state whether the laboratory tests are absolutely accurate respecting the effects of gas and water on asphalt pavements?

A. Why, only in so far as it substantiates the results of observation out of doors.

Q. Somewhere in your examination in chief you used the expression: So far as the laboratory experiments went. What did you mean?

A. I meant just that, that laboratory experiment is not of value in examining asphalt for pavements, except in so far as it substantiates the result of our of door observation.

Q. Did I understand you to say that you have not made a specialty of looking into the question of Trinidad asphalt?

A. No, sir; I do not make a specialty of any one kind of asphalt.

Redirect Examination.

By Mr. WORTHINGTON:

Q. Doctor, you have spoken of the inferior quality of the base of that M street pavement, and about the concrete being a weak mixture. Are you referring to the base as  
136 actually constructed, or to the base as described in the specifications which you heard read here a little while ago?

A. Well, as a matter of fact, I must admit that I was not speaking as to the actual mixture, or of the specification, but only of the opinion which is generally shared by scientific men, that natural cement is inferior to Portland cement for building foundations for any sort of construction, except in exceptional cases which I know about.

Q. Then what you have said in derogation of that concrete base grows entirely out of your opinion that natural cement is inferior to Portland cement?

A. Yes, sir; exactly.

ALLERTON S. CUSHMAN,  
*By the Examiner by Consent.*

Subscribed and sworn to before me this — day of —, A. D., 1904.

\_\_\_\_\_,  
*Examiner in Chancery.*

The further taking of these depositions was thereupon adjourned until Tuesday, July 5th, 1904, at 2.30 o'clock a. m.

137 WASHINGTON, D. C., *July 5th*, 1904—2.30 o'clock p. m.

Met pursuant to adjournment, at the office of A. S. WORTHINGTON, Columbian Building, Washington, D. C.

Present on behalf of the complainant, Mr. WORTHINGTON.

Present on behalf of the defendants, Mr. DUVALL and Mr. THOMAS.

Whereupon ROBERT M. RICHARDS, a witness of lawful age, called by and on behalf of the complainant, having been first duly sworn, is examined,

By Mr. WORTHINGTON:

Q. What is your full name, please?

A. Robert M. Richards.

Q. What is your age?

A. Forty-three.

Q. And your residence?

A. Washington, D. C.

Q. What is your occupation?

A. Superintendent of the Barber Asphalt Paving Company, in Washington.

Q. How long have you been superintendent of that company here?

A. Seventeen years.

Q. Continuously?

A. Yes, sir.

138 Q. What, if anything, has your position as superintendent during that time required you to do, with reference to the laying of asphalt pavements in Washington by that company?

A. My position requires the supervision of all the preliminary work, of the concrete foundation, and laying the asphalt binder and surface.

Q. Has the company, during that time, had works here where it manufactures its pavements?

A. Yes, sir; continuously.

Q. Have your duties required you to go at all to the yard where the operations are carried on?

A. Yes, sir; that is part of the duty. It covers both yard and street work.

Q. In a general way, how often would you go to the yard, and to the streets where pavements were being laid, during the time the company was engaged in laying pavements here?

A. Probably daily to both places—sometimes several times a day to both places.

Q. To about what extent did you observe how the operations were carried on, in detail, both at the yard and in the street?

Q. Usually, at the yard, we take small parts of the mixture from the wagon just as it is leaving for the street, to test the appearance—that is, the amount of stain it gives to a paper. That is to test the amount of bitumen in it. Then when it gets to the street we see that it is raked out properly, and

139 that the specified grades are met.

Q. Generally, did you see to the proper performance of the operations of the yard and on the street—both places?

A. Yes. That is, in a supervisory way. Of course I did not come in direct contact with the laborer at either place. I acted through other people.

Q. What other people?

A. Well, the foremen at the respective places.

Q. Was he, or, not, under your personal control?

A. Oh, yes.

Q. Will you tell me what portions of the streets were paved with asphalt by the Barber Asphalt Paving Company under the contract No. 2350, referred to in the original bill of complaint in this case, being the contract dated September 16, 1896?

A. That is the first one. Under contract 2350 there were laid both sides of M street from Thirty-third to Thirty-sixth street, and the south side from Thirty-first to Thirty-second street.

Q. Is that M street northwest?

A. Yes; M street, Georgetown.

Q. What other pavements or parts of pavements in the District?

A. Do you want me to give a list of them?

Q. Yes; of all of them under that contract.

A. W street, northwest, from Twelfth to Thirteenth street; T street northwest, from Seventh to Ninth street; Riggs street from New Hampshire Avenue to Nineteenth street; First street, northwest, from O to P street; Florida Avenue, 140 northwest, from First to North Capitol street; P street, northeast, from North Capitol to First street; B street, northeast, from Eighth to Ninth street; D street northeast from Maryland Avenue to Ninth street; C street, southeast, from Eleventh street to Twelfth street; South Carolina Avenue, southeast from Seventh to Ninth street; I street, southeast, from Eighth to Ninth street; M street, northeast, from Second to Florida Avenue; U street, northwest, from Sixteenth to Eighteenth street; I street, northwest, from Twenty-third to New Hampshire Avenue; Third street southwest from H to I street; F street, northeast from Third to Fourth street; G street northeast, from Maryland Avenue to Fourteenth street; Florida Avenue Northwest, south side from Eighteenth to Connecticut Avenue; E street southeast, from Thirteenth to Fourteenth street.

Q. During about what period was this work all done under that contract?

A. I have got the completion date of each street.

Q. Then give me the completion date of each street.

A. W street, completed September 24, 1896; T street, completed October 5th; Riggs street, completed October 10th; First street, completed October 14th; Florida Avenue, completed October 24th; P street completed October 30; B street completed November 7th; D street completed November 9th; C street completed November 17th; South Carolina Avenue, completed November 17th; I street, completed November 26th; M street,

141 completed December 17th; U street completed December 26th.

Q. And when was M street in Georgetown completed?

A. Well, from Thirty-third to Thirty-sixth street, was completed January 5th, 1897, and the south side, from Thirty-first to Thirty-second street was finished June 16th, 1897.

Q. Please tell me what parts of streets were paved with asphalt by the Barber Asphalt Paving Company under the contract referred to in the supplemental and amended bill of complaint in this case, being No. 2491, dated the 19th day of August, 1897; and also, in each case, state when the work was completed.

A. Does that include M street, Georgetown?

Q. Yes.

A. M street, Georgetown, the north side from Thirty-first to Thirty-second street, and both sides from Thirty-second to Thirty-third street.

Q. Completed when?

A. The north side from Thirty-first to Thirty-second street was completed September 24th, 1897, and from Thirty-second to Thirty-third street was completed January 5th, 1898. Also Spruce and Bohrer streets in Le Droit Park, completed October 8th, 1897; Rhode Island Avenue, from New Jersey Avenue to Florida Avenue, completed October 11, 1897; Third street southwest, from I to K street, completed October 16th, 1897; North side of Virginia Avenue, southwest, from South Capitol to Delaware Avenue, completed November 13th, 1897; N street southwest, from 4 1-2 to Sixth street, completed November 25th, 1897; Twelfth street northwest, from C  
142 to D streets, completed December 2nd, 1897; Eleventh street, northwest, from B to C street completed December 11th, 1897; and Eleventh street northwest from C to D street, completed December 17th, 1897.

Q. How do you fix the date of completion of each piece of work?

A. That is the date on which the asphalt work was completed.

Q. Now, as to the parts of streets which were paved under the first mentioned contract, No. 2350, how did the manner in which the work was done, the materials used in the work, and the men who did the work, correspond as to the part of M street which was paved under that contract, with all the other pavements which you have described?

Mr. THOMAS: That is objected to on the ground that Mr. Richards has not shown that he has sufficient knowledge on those subjects to give an answer.

By Mr. WORTHINGTON:

Q. Withdrawing that question for the time being, what personal knowledge have you, as to whether or not the work that was done on M street under contract No. 2350 was done by the same men who did the other work under that contract which you have described?

A. I saw them on the respective streets.

Q. What personal knowledge have you as to whether the materials which were used in paving M street under that contract were the same materials, mixed in the same proportions, and in the same way, as in the case of the other work  
143 done under that contract?

Mr. THOMAS: Objected to, on the ground that Mr. Richards has already testified that he only had a general knowledge about the mixtures, and that he did not supervise each mixing of asphaltum, but that he only learned from others.

A. I saw the crude materials in the yard before they were manufactured. I saw them handled on the street, and I saw the chemical analysis of the mixtures as laid.

By Mr. WORTHINGTON:

Q. What personal observation did you have as to whether the mixing process was done in the same way, and in the same proportions, in the work on M street under contract No. 2350, as in the case of the other work under that contract which you have described?

Mr. THOMAS: Objected to, because the witness has already stated that he did not do it himself.

A. The methods are uniform from day to day.

Mr. THOMAS: I move to strike out the answer.

By Mr. WORTHINGTON:

Q. How do you know the methods were uniform?

A. By personal observation.

Q. What knowledge have you as to whether in the work of placing the material on the street, it was done in the same way on M street as it was done in the other parts of streets paved under that contract No. 2350?

A. That is also uniform. The methods are all uniform.

Q. How do you know?

144 A. By personal observation.

Mr. THOMAS: I move to strike out all of that on the ground that it is a mere matter of opinion by the witness.

By Mr. WORTHINGTON:

Q. Please state how the work that was done on M street under contract No. 2350 compared with the work done on other streets under that contract, as to the materials used, the proportions in which those materials were mixed, the process of preparation of the material at the yard, and the laying of it on the street?

Mr. THOMAS: Objected to, on the ground that sufficient foundation has not been laid for an answer by the witness to the question.

A. All substantially uniform.

Mr. THOMAS: I move to strike the answer out.

By Mr. WORTHINGTON:

Q. State whether or not you had the same means of observation as to the work done under contract No. 2491, dated August 19, 1897, as to that done under contract No. 2350, to which you have just been referring?

Mr. THOMAS: It may be understood that we object to all this line of testimony?

Mr. WORTHINGTON: Yes.

A. Yes, sir.

By Mr. WORTHINGTON:

Q. State as to the work done under contract No. 2491, how that part of it which was done on M street compared with the work done on other streets, as to the materials used, 145 the proportions in which they were mingled, the manner in which the material was prepared at the yard, and the manner in which it was laid on the street.

Mr. THOMAS: I make the same objection.

A. There was no material difference.

By Mr. WORTHINGTON:

Q. How did the work other than that done on M street under contract No. 2350, stand the five-year test prescribed by the contract?

A. I can give it in detail from my notes.

By Mr. THOMAS:

Q. Mr. Richards, what do you mean when you say you desire to refer to your notes.

A. These notes are a summary of our records.

Q. When did you make that memorandum.

A. Within a few days.

Mr. THOMAS: I object to the reference to these memoranda by the witness for any purpose.

By Mr. WORTHINGTON:

Q. Proceed, Mr. Richards.

Mr. THOMAS: Is it understood that Mr. Richards is now examining the papers?

Mr. WORTHINGTON: It is understood that he is now referring to memoranda which the witness made, as he has testified. He is refreshing his recollection by the use of it.

Mr. THOMAS: I move to strike it all out.

A. In addition to those two pieces of M street there were nineteen other pieces of work. Ten of these, covering an area of over 23,000 square yards, cost nothing for repairs during the guarantee period.

By Mr. WORTHINGTON:

Q. What were those portions?

A. Do you mean particular streets?

Q. Yes.

A. T street, from Seventh to Ninth street; First street from O to P street; Florida avenue from First to North Capitol street; C street from Eleventh to Twelfth street southeast; M street, from Second to Florida Avenue northeast; I street from Twenty-third to New Hampshire Avenue; F street from Third to Fourth street; G street from Maryland Avenue to Fourteenth street; Florida Avenue from Eighteenth street to Connecticut Avenue, and E street from Thirteenth to Fourteenth street.

Nine of them, covering an area of about 18,000 square yards cost \$102.64 to keep in repair during the guarantee period. This is one-half of one cent per square yard. This \$102.64 spread over the entire yardage, about 41,000 square yards, gives a cost of two-tenths of one cent per square yard for the first five years of the life of the pavements.

Q. State as to the pavements other than M street, done under that contract No. 2350, whether or not they were accepted by the District Commissioners as satisfactory, and the retainer on account of them paid over to the company?

A. After these repairs, yes.

Q. Now, have you told us all the repairs required on work done under contract No. 2350, aside from M street?



A. Yes, sir.

147 Q. Next, as to contract No. 2491, what was done to thee pavements in the way of repairs, aside from the M street part of the work?

Mr. THOMAS: It is understood that the objections heretofore made cover all like evidence given by the witness about this work, without being repeated.

A. There were eight other streets under contract No. 2491, three of which were accepted at the expiration of the guarantee period without repairs. They covered an area of about 4,400 square yards. Five, covering an area of about 9,000 square yards, cost \$123.58 during this five-year period, which is one-tenth of one cent per square yard. This cost on the five streets, spread over the whole eight streets, with an area of over 13,000 square yards, makes a cost, for maintenance during the five-year period of less than one-tenth of one cent per square yard.

By Mr. WORTHINGTON:

Q. Have you now told us of all repairs required on the work done under contract No. 2491, aside from M street?

A. Yes, sir.

Q. Tell us whether or not, as to the work done under contract No. 2491, aside from M street, it was or was not accepted by the District at the end of the five-years, with the expenditure for repairs to which you have testified?

A. They have been accepted; yes, sir.

Q. As to these figures that you have just been giving us, you have referred you say to memoranda made by yourself. From what is that memoranda made up?

148 A. From the records that go to make up the cost of operations in the city.

Q. Made up from the books and records of the Barber Asphalt Paving Company, or what?

A. Oh, yes; made up from their record books.

Q. Are those books that you keep, or are they kept under your supervision?

A. Some I keep myself, and some are kept by others.

Q. Are the sources from which this memorandum was made numerous and complicated, so that they cannot be put in evidence very well themselves?

A. Yes; some are in large volumes with a lot of other information.

Q. Do you know whether or not the District Commissioners, or someone for them, keeps a record of these things, so that they can compare their records with yours, to see whether your information is correct?

A. I think not.

Q. What, if anything, do you know of temporary railroad tracks having been placed upon M street between Thirty-first and Thirty-sixth streets?

A. I saw them in January, 1898, which was a very few weeks after the last piece of pavement had been laid there. They occupied the south side of the street from Thirty-first to Thirty-third street, and there crossed over to the north side and ran down to beyond Thirty-fifth street, nearly to the car barn.

Q. How many of these temporary tracks were there?

149 A. Two tracks; four rails.

Q. Were the rails laid loosely on the pavement, or fastened down in some way?

A. There was an attempt made to fasten them down. But they were always getting loose and being respiked.

Q. How were they fastened down?

A. By means of spikes.

Q. What was the size of the spikes?

A. A half inch square, and three inches long.

Q. How many rows of spikes were there?

A. There must have been two rows for each rail.

Q. That would make eight rows?

A. Yes.

Q. What did you observe as to how far apart the spikes were?

A. I only observed generally. I should say two feet.

Q. You said something just now about the tracks getting loose, and being respiked. What did you mean by that?

A. It was impossible to hold them down with the first spiking, and they had a number of working men along there keeping the rails in position by renewing the spikes as they jumped out.

Q. Have you had sufficient experience with the asphalt pavement business to know whether treatment of that kind of an asphalt pavement is beneficial or injurious?

Mr. THOMAS: Objected to, because it has not been shown that Mr. Richards is sufficiently experienced to warrant him in testifying as an expert.

150 Mr. WORTHINGTON: I will withdraw the question for a moment.

By Mr. WORTHINGTON:

Q. What, if anything, have you had to do with taking care of the pavements of the Barber Company here during the seventeen years you have been superintendent, after the pavements were laid?

A. I have had the same supervision of them that I have had of these.

Q. Have you any personal knowledge as to whether making holes in such asphalt pavements as the Barber Company has laid here during your term of superintendence, will have any effect upon them?

Mr. THOMAS: Objected to.

A. I cannot see how it could be otherwise than harmful.

Mr. THOMAS: I move to strike the answer out.

By Mr. WORTHINGTON:

Q. That sounds theoretical. Have you had any practical knowledge on the subject during your seventeen years' experience?

A. No, I cannot say that I have, if I understand your question correctly.

Q. My question is whether you have had personal observation, as to whether making holes in an asphalt pavement is any injury to it?

A. No.

Q. Is that because holes have not been made in it, or because you have not observed what the effect was when they  
151 were made?

Mr. THOMAS: Objected to as immaterial.

The WITNESS: Because it is of so infrequent occurrence that it has never been brought very strongly to my attention.

By Mr. WORTHINGTON:

Q. Was anything done by you on behalf of the Barber Asphalt Paving Company at or about the time these railroad tracks were spiked down on the street?

A. Yes, sir; I addressed a letter in the form of a protest to the Commissioners of the District.

It is here agreed by counsel that the copy of the protest just referred to by the witness, which is filed as part of the affidavit of Conway B. Hunt with the answer of the defendants to the original bill in this case, April 29, 1903, may be offered in evidence in place of the original paper.

Said copy is in the words and figures following, to wit:.

WASHINGTON, D. C., *January 29th*, 1898.

"Gentlemen:

Your attention is invited to the extraordinary use and consequent abuse of the asphalt pavement on M street between

31st and 36th Streets, laid by this Company, under contracts Nos. 2350 and 2491, between the District of Columbia and ourselves and now under guarantee of repairs by us for a term of years. During the installation of the conduit electric system on the Capital Traction Company's road that company has been permitted to abandon its right-of-way in the center of the roadway and use temporary tracks laid directly on the asphalt pavement, without any effort whatever being made to protect said pavement from injury occasioned by the diversion from its proper use. Damage along the line of junction of brick gutters and asphalt is now apparent on the south side between 32nd and 33rd Streets, when one of the temporary rails bears on the joint of the two pavements. Along other portions of the road where these temporary tracks have been laid on asphalt pavements injury, at least to appearances, is visible, and we have no doubt that when the tracks are taken off the M Street pavement, the asphalt surface will be disfigured. We are aware that if any repairs are immediately necessary, they will be made without cost to us, but some of the injury will only be accentuated by cutting out and renewing, yet under the contract provisions we may be required to correct any imperfections and unevenness of surface at the expiration of the guarantee period. We therefore ask that record be made of this protest against being held responsible for injury to the pavement incident to its diversion from its proper use, especially as absolutely no effort has been made to protect it. The portions of the pavement which have been so abused, for ten days now, are the south side from 31st Street to about 150 feet west of 33rd Street, and the north side from that point to about the same distance west of 35th Street.

Very respectfully,  
THE BARBER ASPHALT PAVING COMPANY,  
R. M. RICHARDS, *Sup't.*"

153 By Mr. WORTHINGTON:

Q. What, if anything, did you observe at or about the time you wrote the protest in question, in reference to any injury to the pavement resulting from the use of these spikes?

A. I saw no injury at the time. It was done in anticipation of injury that would develop in the future.

Q. In this protest you say: "Damage along the line of junction of brick gutters and asphalt is now apparent on the south side between 32nd and 33rd Streets, when one of the temporary rails bears on the joint of the two pavements."

What did you mean by that?

A. That the asphalt had been crowded away from the bricks

so that there was no bond between the asphalt and the brick gutter.

Q. In how close proximity to any of these rows of spikes did that appear?

A. Well, within two or three inches.

Q. Do you know whether or not when the temporary tracks were taken up and the spikes withdrawn, anything was done in the way of filling up the holes?

A. My recollection is that the District sent their repair force through there, cutting out what they saw, and what they could find, and renewed it.

Q. Can you tell me from your own experience and observation, whether or not a pavement which has had holes cut in it, and which has been repaired, even by the best methods, is  
154 as good as it was originally?

A. It could not be.

Q. How long were those rails down there to your recollection?

A. I should say two months.

Q. Do you know whether or not they were in use during that time? Were they running cars over them?

A. Oh, yes sir.

Q. When and how was your attention first directed to the alleged presence of illuminating gas in this M street pavement, that we are talking about?

A. I think it was in January, 1902.

Q. And how?

A. I think we were verbally notified that the pavement required repairs. An appointment was made between the District representatives and myself to look the street over to see the nature of the repairs, and the extent that would be required.

Q. Who was the representative of the District?

A. I met Mr. Dow, the Inspector of Asphalts and Cements on the street, in January, and we examined the pavement together.

Q. Up to that time what knowledge, if any, had you as to the possible or probable injury of an asphalt pavement by being saturated by illuminating gas?

Mr. THOMAS: Objected to on the ground that Mr. Richards is not shown to be an expert.

A. I have seen the pavement on Eleventh street, between Pennsylvania Avenue and E street, northwest,  
155 being repaired by the District force, when the pavement acted substantially as this M street pavement acted, and when upon removing the asphalt surface from the concrete base the odor of gas was perceptible.

By Mr. WORTHINGTON:

Q. What kind of gas?

A. Illuminating gas. . I have seen substantially the same conditions at the southeast corner of Seventeenth street and Pennsylvania Avenue. That is all I recall just at this moment.

Mr. THOMAS: I move to strike out the answer on the ground that the observations of Mr. Richards about these particular pavements would not give him any expert knowledge of the effect of illuminating gas on asphalt pavements.

By Mr. WORTHINGTON:

Q. At Seventeenth street and Pennsylvania Avenue, did you there in any way detect the presence of illuminating gas?

A. Yes, sir.

Q. How?

A. By the nose; by smelling it.

Q. Smelling it when it was in place, or how?

A. By removing samples and putting them to the nose.

Q. As to these two illustrations you have given, were they before or after you met Mr. Dow on M street in January, 1902?

A. Long before, I think.

Q. Since this M street episode, have you had any ob-  
156 servation on that subject anywhere else?

A. Not of my personal knowledge.

Q. Tell us what were the unusual appearances, if any, that you observed on this M street pavement between Thirty-first and Thirty-sixth streets, when you first went there in January, 1902, and met Mr. Dow?

Mr. THOMAS: Objected to on the ground that the witness is not sufficiently qualified to testify.

A. Well, there were long parallel cracks, you might call them; they are cracks. The pavement had separated, and was spongy-like. I do not think I have ever seen that condition from any other cause.

Q. On what parts of the M street pavement between Thirty-first and Thirty-sixth streets did you observe these conditions in January, 1902?

A. We were then examining the pavement between Thirty-second and Thirty-third street; and I think that condition was apparent somewhere in every block along both sides of the street.

Q. Did you at that time make any observation as to the smell?

A. Oh, yes. My attention was called to the smell of illumi-

nating gas by Mr. Dow. I did not realize what the cause was of the pavement acting so badly.

Q. Did you smell for yourself, or through Mr. Dow?

A. No, I smelled it for myself.

Q. Did you smell the pavement when it was in place then, or how did you smell it?

157 A. By removing small samples.

Q. At about how many different places on that part of M street, did you then examine?

A. Probably half a dozen. I don't remember exactly. I should say at least that number.

Q. And as to how many of them did you, yourself, detect the odor of illuminating gas in the samples taken up?

A. I should say in the six.

Q. Did you observe it in all the samples you took up?

A. Oh, no.

Q. Do you mean that you took up samples where this peculiar appearance was observed, that you have described, and still did not notice any smell of illuminating gas?

A. Oh, yes; in some samples there was no odor perceptible.

Q. Were those in the same bad spots, or in other bad spots from those in which you observed the smell of illuminating gas?

Mr. DUVALL: I object to the question as leading.

A. Some of these spots were so small that I would hardly know what to expect. Probably in one spot there would be nothing perceptible, and in another place a foot away it would be very perceptible.

By Mr. WORTHINGTON:

Q. At the time you met Mr. Dow on M street in January 1902, did you preserve any of the samples which you then took up?

158 A. I am not sure. I would have to refer to the samples here.

Q. Please refer then to them, and let us know whether you have any of that part, and date.

A. (After referring to samples) No, sir; I have nothing in January, 1902.

Q. When did you next go to that street to make observations as to the condition of the pavement on M street between 31st and 36th streets?

A. I was there in May, 1902, and in November, 1902.

By Mr. THOMAS:

Q. What are you reading from, Mr. Richards?

A. From my notes—the same notes.

Mr. THOMAS: I object, and move to strike out the testimony.

The WITNESS: Those were dates when we made repairs there on the streets.

By Mr. WORTHINGTON:

Q. Since this question is raised, how do you fix the date of your first meeting Mr. Dow there as in January, 1902?

A. By referring to a report I made to my employers.

Q. How soon after you met Mr. Dow on the street did you write the report?

A. Within two days, and probably the same day.

Q. What is the date of your report to your company?

A. In January, 1902.

Q. How do you fix the date of your next going there as in May, 1902?

A. By the date of what we call the repair reports.  
159 When we repair a street we make a record of the area renewed and the amount of money we spend.

Q. Tell us about your visit to M street in May, 1902, as far as it bears on the question of the condition of the pavement of that street between Thirty-first and Thirty-sixth streets.

Mr. THOMAS: The same objection as before.

A. Well, we made repairs there, removed some of the surface and put in new—replaced defective pavement.

By Mr. WORTHINGTON:

Q. I want to find out what, if anything, you observed then as to illuminating gas?

A. I do not recall that at that time there was anything further.

Q. Did you not at that time make any personal examination as to whether the smell of illuminating gas was still there?

A. If I did it has gone from my recollection. There were no samples taken, and I have no reason now to remember it.

Q. When did you next go to that street between Thirty-first and Thirty-sixth streets, for the purpose of observing its condition?

A. After May we went there in November, 1902.

Q. When you say "we" whom do you mean?

A. I mean the company, our repair force.



Q. Did you personally make any observations then as to the presence of illuminating gas?

A. Yes, sir.

160 Q. Tell us about it.

A. It was in November; no, it was not in November 1902. No, that was simply a regular visitation in keeping the streets up and repairing holes. There was not any note made then of gas, or what it was.

Q. Did you at any time go there and take and preserve samples?

A. Oh, yes.

Q. When did you do that?

A. In November, 1903, after the company had declined to make repairs and the District was making its own repairs.

Q. When you went there in November, 1902, did you make any personal observations as to whether the odor of illuminating gas was there still?

A. No, sir.

Q. When did you go there next after November, 1902?

A. In September, 1903. That is fixed in my mind. I went over that street any number of times, and went through it to see what condition it was in, and to see if it required repairs.

Q. Generally, what did you observe as to its condition up to the time you went there and took samples in November, 1903—omitting that last visit for the present.

A. The roadway was constantly getting into bad condition so that it required attention and renewing.

Q. In what way did you see it to be out of order?

A. By holes appearing under traffic.

161 Q. Were they on particular parts of this pavement between Thirty-first and Thirty-sixth street, or scattered along, or how?

A. Pretty generally scattered all through.

Q. How did the manner in which that pavement lasted compare with how the other pavements laid under the same contract lasted, under your observation of them?

Mr. THOMAS: Objected to as immaterial.

A. There was no comparison. This record I have made will show only one visitation required to a number of other streets in five years.

By Mr. WORTHINGTON:

Q. Using your best recollection, and without reference to records, what is your best recollection as to the manner in which the M street pavement between Thirty-first and Thirty-

sixth streets, lasted, as compared with your recollection of how the other work done under the same contract lasted.

Mr. THOMAS: The same objection.

A. It did not approach the others in durability.

By Mr. WORTHINGTON:

Q. When you went there in November, 1903, what did you observe, and what did you do?

A. I took a number of samples, removed them and put them in glass jars, and sealed them with paraffin, and tried to preserve the odor of illuminating gas which appeared in the samples as they lay out on the street.

Q. From what parts of the street did you take samples on that occasion?

A. They are here in jars, and each jar is marked.

162 Q. Please produce the jars and identify them.

A. I find I am mixed up in the years. I have been speaking of it as 1903; but this last visit was in November, 1902.

Q. Then what you have said about November, 1903, should refer to November, 1902?

A. Yes, sir.

Q. And how about what you have said as to November, 1902? When was that?

A. That is when we were making repairs; when the Barber Company was making repairs.

Mr. THOMAS: I object to any reference to reports of repairs made by the Barber Company unless the reports are put in evidence.

The witness here produces a jar upon which is pasted a label containing the following: "November 3, 1902, front 3100 M street south side next brick gutter." The same is offered in evidence by counsel for the complainant and marked Exhibit Richards No. 1.

Also jar on which is pasted a label containing the following: "November 3, 1902, 3112 M street, south side from gutter to track." The same is offered in evidence by counsel for the complainant, and marked Exhibit Richards No. 2.

Also jar on which is pasted a label containing the following: "November 3, 1902, 3116-18 M street south side center roadway. The same is offered in evidence by counsel for the complainant and marked Exhibit Richards No. 3.

163 Also an unsealed paper package marked "November 3, 1902, 3120 M street", which is offered in evidence by

counsel for the complainant, and marked Exhibit Richards No. 4.

Also a jar upon which is pasted a label containing the following: "November 3, 1902, front 3146 next track. This portion of the street (3 ft. south of south rail from 31-32 was not laid by the Barber Company, but by the Cranford Company over a trench cut by the Cap. Trac. Co." Same is offered in evidence by counsel for complainant, and marked Exhibit Richards No. 5.

Also a jar upon which is pasted a label containing the following: "November 3, 1902, front 3150 (Cor. 32d) M street." Same is offered in evidence by counsel for complainant, and marked Exhibit Richards No. 6.

Also a jar upon which is pasted a label containing the following: "November 4, 1902, N side M street, on line E. curb 34 2 ft. south edge brick gutter." Same is offered in evidence by counsel for complainant and marked Exhibit Richards No. 7.

Also a jar upon which is pasted a label containing the following: "November 5, 1902, N side M 45' W. W. c. l. 35th 4' S. n. c. l." Same is offered in evidence by counsel for complainant, and marked Exhibit Richards No. 8.

Also a jar upon which is pasted a label containing the following: "10 ft. east of 3338 M street, November 17, 1902. R.M.R. Opened April 8, 1903 C. R. R.M.R." Same is offered in evidence by counsel for complainant, and marked Exhibit Richards No. 9.

164 Also a jar upon which is pasted a label containing the following: "Front Tribby's 3143-45 M street November 19, 1902." Same is offered in evidence by counsel for complainant, and marked Exhibit Richards No. 10.

Also an unsealed paper package upon which is endorsed the following: "September 4, 1903, N. E. Cor. M and 33 streets. Apparently good and full thickness. Sample at Richardson's suggestion." Same is offered in evidence by counsel for complainant, and marked Exhibit Richards No. 11.

By Mr. WORTHINGTON:

Q. As to each of these exhibits, will you state whether or not the samples were taken up by you personally, and have been kept in your possession ever since?

A. They were picked up by me from the street and put in these jars, and sealed, and have been under key, which has been in my possession ever since.

Q. Put up in jars and sealed by whom?

A. By myself.

Q. Do I understand that as to each of them you have per-

sonal knowledge as to where it came from and where it has been since it was taken up?

A. I have, sir.

Q. As to this Exhibit Richards No. 1, from what part of M street was it taken, and when?

A. It was taken November 3rd, 1902 from in front of No. 3100 M street, next to the brick gutter.

Q. As to this Exhibit Richards No. 2, tell me where that came from, and when?

165 A. This was taken November 3rd, 1902, from in front of 3112 M street. It is a sample of the pavement which ran from the gutter to the track.

Q. As to this Exhibit Richards No. 3, state where that sample came from, and when it was taken up from the street?

A. It was taken November 3rd, 1902 from in front of houses 3116 and 3118 M street, about in the center of the roadway.

Q. As to the exhibit Richards No. 4, state where that sample was taken from, and when?

A. It was taken November 3rd, 1902, from in front of Houses No. 3120 M street.

Q. As to this Exhibit Richards No. 5, from what place was that taken, and when?

A. It was taken November 3rd, 1902, from in front of House No. 3146 M street, next the track. This portion of the street, three feet south of south rail from Thirty-first to Thirty-second streets, was not laid by the Barber Company but by the Cranford Company, over a trench cut by the Capital Traction Company.

Q. Now as to exhibit Richards No. 6, where was that sample taken from, and when?

A. It was taken November 3rd, 1902, from in front of house 3150 M street, which it at the corner of Thirty-second and M streets.

Q. As to Exhibit Richards No. 7, where was that sample taken from, and when?

166 A. It was taken November 4, 1902, from the north side of M street on a line with the east curb of Thirty-fourth street and two feet south of the edge of the brick gutter.

Q. As to this sample, Exhibit Richards No. 8, where was that taken from, and when?

A. It was taken November 5th, 1902, from the north side of M street, forty-five feet west of the west curb line of Thirty-fifth street, and four feet south of the north curb line of M street.

A. As to this sample, Exhibit Richards No. 9, where was that taken from, and when?

A. It was taken November 17th, 1902, ten feet east of house No. 3338 M street.

Q. As to the sample in jar marked Exhibit Richards No. 10, where was that taken from, and when?

A. It was taken November 19th, 1902, from in front of Tribby's store, 3143-45 M street.

Q. As to the sample in package marked Exhibit Richards No. 11, where was that taken from, and when?

A. It was taken September 4th, 1903, at the northeast corner of M and Thirty-third streets.

Q. Now, as to the sample in jar marked Exhibit Richards No. 1, will you state whether or not at the time it was taken up, there was any smell of illuminating gas about it?

A. I cannot recall whether there was or not. I suppose there was. It is not marked so, but I suppose that all the samples when taken smelled of gas.

Q. Suppositions do not go in court. We want your recollection.

A. There is nothing on it to show now. Well, I can  
167 say yes, because I didn't take any other kind of samples.

Q. Then do you say as to the sample on jar No. 1 that it did smell of illuminating gas?

A. Yes, sir.

Q. What do you say as to the sample in jars marked Exhibits Richards No. 2, Richards No. 3, Richards No. 5, Richards No. 6, Richards No. 7, Richards No. 8, Richards No. 9 and Richards No. 10?

A. They all smelled of gas at the time they were sealed.

Q. And you do not know, until they are opened, whether they will smell of illuminating gas nor or not?

A. No, sir.

Q. Now, as to the sample contained in the package marked Exhibit Richards No. 4, why is that in a package and not in a jar, and what does it show?

A. I will open it and see. (After opening package referred to.) This was to show the action of gas. It was taken November 3rd, 1902, from in front of No. 3120 M street.

Mr. THOMAS: That is objected to as any evidence showing the action of gas.

By Mr. WORTHINGTON:

Q. What do you say as to whether or not, that sample, when taken up, did or did not smell of illuminating gas?

A. It did.

Q. Can you detect any odor of that kind about it now,  
168 without breaking it?

A. No, sir.

Q. Are there any unusual appearances about that sample?

A. Yes, sir.

Q. What are they?

A. It shows a separation of the asphalt wearing surface, so that there are now two distinct courses. When laid it was all one mass.

Q. As to the sample in the package marked Exhibit Richards No. 11, what do you say as to whether that is in good condition or not, and whether it was in good condition when you took it up from the street?

A. It was when it was taken, and is now.

Q. Why did you take it up?

A. To show that some mistake was being made in removing good surfaces.

Q. Did you cut it up from the street when it was in place, or what?

A. No; I found it after it had been taken up preparatory to being thrown into a wagon and taken away.

Q. On what part of the street did you find that?

A. This was taken at the northeast corner of M and Thirty-third streets.

By Mr. THOMAS:

Q. Do you say you smell gas in that?

A. No, sir.

By Mr. WORTHINGTON:

169 Q. Do you know by whom the part of the street represented by this sample, had been torn up? I want to know whether it was done by the Barber Company or by the District, or by whom?

A. No; it was taken up preparatory to making repairs by the District's order, after the Barber Company had declined to make it.

Q. I understand, as far as your observation goes, there is nothing the matter with that particular part of the street?

A. Not in the particular area represented by this sample.

Q. Did you, yourself, observe what portions of M street between Thirty-first and Thirty-sixth streets were taken up and replaced by the District authorities after the Barber Company had refused to do it?

A. What portions?

Q. Yes.

A. Yes, sir. I was present every day, I think, while the renewals were being made.

Q. Did you make any memorandum of the parts of the

street which they replaced after the Barber Company had refused to do it?

A. No, sir; no memorandum.

Q. What is your recollection as to the parts of that street, between Thirty-first and Thirty-sixth streets, on which the District authorities replaced or caused to be replaced the surface of the pavement, after the Barber Company had  
170 declined to do it?

A. Well, I should say that 75 per cent of the south side between Thirty-first and Thirty-second; probably 60 per cent of the north side between Thirty-first and Thirty-second; and 25 per cent between Thirty-second and Thirty-third.

Q. On both sides or only on one side?

A. On both sides between Thirty-second and Thirty-third; and say 15 per cent between Thirty-third and Thirty-sixth streets.

Q. Between Thirty-fourth and Thirty-sixth streets, was the work of replacing done on both sides of the street or on one, or partly on both?

A. Between Thirty-fourth and Thirty-sixth streets there was some on both sides. The largest separate area was on the north side I should say.

Q. Between Thirty-fourth and Thirty-sixth streets what proportion of the pavement would you say was replaced on the south side?

A. What proportion of the whole, or what proportion of the 15 per cent?

Q. What proportion of the whole work on the south side of M street between Thirty-fourth and Thirty-sixth streets was replaced by the District?

A. Five per cent.

Q. And on the north side, between those streets what proportion?

A. Fifteen per cent.

Q. As to Exhibit Richards No. 9, will you state  
171 whether or not, after that jar was sealed, it was opened?

A. Yes, sir.

Q. When?

A. It was opened by myself in April of this year, in the presence of Mr. Clifford Richardson.

Q. What observation did you make then as to illuminating gas, if any?

A. It smelled of gas when it was sealed, and it smelled of gas when it was opened, and I have very little doubt that it will smell now.

Q. Did you reseal it after opening it?

A. Yes.

Q. How soon after it was opened did you reseal it?

A. Within five minutes.

Q. What you say it smelled of gas, what kind of gas do you mean?

A. Illuminating gas.

Q. How did the places on which you observed that the District had replaced the surface of the pavement between Thirty-first and Thirty-sixth streets, compare with the places in which you had observed the smell of illuminating gas?

At the request of the witness the stenographer read the question.

Q. I want to know whether they were the same places or different places?

A. All the places that were sampled and that smelled of illuminating gas were removed, and new pavement put in its place.

172 Q. Can you tell us whether or not the District replaced the pavement at points where you had observed no smell of illuminating gas?

A. Yes, sir.

Q. How did the places where there was no smell of illuminating gas compare in appearance with those where you did get the smell?

A. There was no unusual appearance. They looked like any durable asphalt pavement. There was no surface indication of damage.

Q. Do you know, then, why the District replaced the pavement while it was in good condition?

A. It was just one of those unaccountable things. They went a little beyond the limits of defective pavement.

Q. What proportion of the places where they undertook to replace the pavement, were places where the pavement was in good condition so far as you believe, from recollection and observation?

A. I could not state that in any definite terms.

Q. You know more about it than we do, or than the Court does. You were there and saw it. Give us the best answer you can.

A. I should say, generally, it was only the exception where they went into good pavement.

Q. Have you recently made any examination of this M street pavement since it was fixed up by District authorities?

A. Yes, sir; within a week.

173 Q. What did you observe then that bears on this question of illuminating gas?



Mr. THOMAS: Objected to on the ground that Mr. Richards is not qualified as an expert.

A. I saw that some of the pavement that had been put in, as repairs, in September 1903, is now impregnated with illuminating gas.

Q. How did you find that out?

A. By taking up a piece and smelling it.

Q. What was the appearance of the pavement where you took up the sample, without reference to the smell?

A. I cannot say, because the pavement was already up when I went there last week. It had been removed by plumbers in order to make a new house connection. It was laying loose on the roadway.

Q. Where was that; what part of M street?

A. I have a sample here of it. It was on the north side between Thirty-first and Thirty-second.

Q. Was the plumber at work, or the plumber's men, when you went there?

A. I guess they were not plumbers. I guess it was the Georgetown Gas Light Company. It was, the workmen told me.

Q. At any rate there was a big cut there?

A. Yes, sir.

Q. Was it on the north or south side of the street?

A. The north side, in front of 3143, next to the brick gutter.

174 Q. How far out from the brick gutter was the cut running?

A. Three or four feet; but this sample only represents a piece that I took adjoining the brick.

Q. Had that been thrown up there?

A. Yes, sir; cast out by the workmen, in order to make a ditch.

Q. What did you observe, if anything, of the smell of illuminating gas about that sample when you took it up?

A. I applied it to my nose, and found it did smell of illuminating gas.

Q. Please unwrap it, and let us know how that is now.

A. It is not perceptible on the outside, now.

Q. Now I have broken off a small piece on one corner. See if you can detect any gas there now?

A. Yes; it is very perceptible.

Mr. WORTHINGTON: Counsel for defendants and their expert are requested to smell of this sample. The stenographer will please note that counsel do not accept the invitation.

The sample just produced and identified by the witness is

offered in evidence by counsel for complainant, and is marked Exhibit Richards No. 12.

Pending the conclusion of the direct examination of this witness, an adjournment was taken until Friday, July 8th, 1904, at 10 o'clock a. m.

175 WASHINGTON, D. C., *July 8th*, 1904—10 o'clock a. m.

Met pursuant to adjournment.

Present on behalf of the Complainant, Mr. WORTHINGTON.

Present on behalf of the defendant, Mr. THOMAS.

Whereupon, ROBERT M. RICHARDS, resumed the stand for further direct examination.

By Mr. WORTHINGTON:

Q. Mr. Richards, what was your understanding of this question on page 94 of the record, when you answered at the previous examination: "Q. My question is whether you have had personal observation, as to whether making holes in an asphalt pavement is any injury to it?" That question you answered, "No."

A. I understand you were referring to spike holes. You say there cutting holes. Cutting holes always results in damage to an asphalt pavement, especially in cold and wet weather, as was the case on M street.

Mr. THOMAS: You do not claim that that is responsive to your question? You are talking about spike holes, and the witness is talking about cutting a pavement.

By Mr. WORTHINGTON:

Q. When was it, if you recall, that the District made the repairs which the Barber Company refused to make on M street under Contract No. 2491?

A. In September, 1903.

176 Q. Did you at that time make any examination as to whether illuminating gas was present in the part of the pavement which the District repaired at that time?

A. I did.

Q. What observations did you make at that time, and where, and with what result?

Mr. THOMAS: If that is asked in order to get Mr. Richards' opinion as an expert as to the effect of illuminating gas on a pavement, I object. Of course I do not object to what he observed.

By Mr. WORTHINGTON:

Q. I am asking what you saw and smelled.

A. I picked up loose pieces of the pavement that had been removed, and a number of them gave off an odor of illuminating gas.

Q. Pieces that had been removed by whom?

A. By the workmen who were making the repairs on the part of the District.

Q. On what part of the street was it that you picked up these pieces and smelled illuminating gas?

A. On the north side between Thirty-first and Thirty-second, and both sides between Thirty-second and Thirty-third.

Q. Were these examinations made by you at any particular point on these squares you have described, or all along, or where?

A. Of course they were at particular points, but they were generally all over the street.

177 Q. Did you at that time take any samples?

A. Yes, sir.

Q. Where are they?

A. Some of them have been put in evidence.

Q. Where are the others?

A. I think I have some of them here in my bag.

Q. Are they sealed or unsealed?

A. They are not sealed against air. They are in loose packages.

Q. Is there any odor of illuminating gas left about those which you have simply wrapped up in paper?

A. I can not say without testing it.

Q. Please test it.

A. (After smelling sample) Not as it stands, as a whole.

Q. Do you remember from what part of the street you took the sample which you have in your hand?

A. Yes, sir. It was taken from in front of No. 3232 on September 4th, 1903.

Q. That would be on the north side of the street?

A. No; that would be on the south side—No. 3232.

Q. That is the south side of the street between Thirty-second and Thirty-third streets.

A. Yes, sir.

Mr. WORTHINGTON: I offer this sample in evidence.

The above-mentioned sample, offered in evidence by counsel for complainant, is marked Exhibit Richards No. 13.

The WITNESS: Here is another sample from in front of No. 3149, taken September 2nd, 1903.

178 By Mr. WORTHINGTON:

Q. Do you mean you took the sample up from that place on that date?

A. Yes, sir.

Q. Was that while repairs were being made by the District?

A. Yes, sir.

Q. Tell me whether there is now any odor of illuminating gas about that sample?

A. (After smelling sample) No, sir.

Mr. WORTHINGTON: I offered this sample in evidence.

The above-mentioned sample, offered in evidence by counsel for complainant, is marked Exhibit Richards No. 14.

The WITNESS: Here is one from in front of No. 3207 M street, taken September 3rd, 1903, which, when it was taken up smelled strongly of gas.

By Mr. WORTHINGTON:

Q. Smell it, and tell us what you observe about it now.

A. (The witness here breaks in two the specimen last referred to and smells the place where he breaks it open) It is present now.

Mr. WORTHINGTON: This sample, which is now in two pieces, is offered in evidence.

The above-mentioned sample, now in two pieces, offered in evidence by counsel for complainant, is marked Exhibit Richards No. 15.

The WITNESS: Here is a sample taken from in front of house No. 3255 M street, September 3rd, 1903. That was taken  
179 on the north side, three feet north of the railroad track.

By Mr. WORTHINGTON:

Q. State whether or not the odor of illuminating gas was perceptible in that sample when you took it up?

A. Yes, sir.

Mr. WORTHINGTON: I offer this sample in evidence.

The above-mentioned sample offered in evidence by counsel for the complainant, is marked Exhibit Richards No. 16.

By Mr. WORTHINGTON:

As to the samples marked Exhibit Richards 13 and Exhibit Richards 14, I believe you have not stated directly whether or

not they smelled of illuminating gas when you took them up. Will you now state whether they did or not.

A. They did.

Q. What repairs, if any, did the Barber Asphalt Paving Company make on the pavement on M street, laid under Contract No. 2350, during the five year guaranteed period?

A. On the south side of M street between Thirty-first and Thirty-second streets repairs were made at a cost of \$48.87.

Q. Give the date.

A. In September, 1901, and May, 1902. On M street, between Thirty-third and Thirty-sixth streets, both sides, in September, 1900, September, 1901 and May, 1902, repairs were made costing \$88.61. The repairs mentioned on the north side between Thirty-first and Thirty-second, means that it cost the contractor 5 8-10 cents a square yard to maintain that pavement.

Mr. THOMAS: I object to the conclusions of Mr. Richards.

180 The WITNESS: I will put it in another way. There were 838 square yards there that cost \$48.87 to maintain. On M street between Thirty-third and Thirty-sixth there were 4,413 square yards that cost to maintain \$88.61.

By Mr. WORTHINGTON:

Q. Have you given us all the repairs made by the Barber Company on the pavements on M street laid under Contract No. 2350?

A. That is all.

Q. What repairs, if any, did the Barber Company make on that part of the pavement on M street laid under Contract No. 2491, during the five year guaranteed period?

A. On the north side between Thirty-first and Thirty-second streets, repairs were made in December 1899, September 1900, May, November and December, 1902, at a total cost of \$49.95, which is 6 1-10 cents a square yard. On M street between Thirty-second and Thirty-third both sides, repairs were made in September, 1901, May, November and December, 1902, at a cost of \$72.03.

Q. How many square yards were there?

A. 3,553.

Q. Have you now given us all the repairs made by the Barber Company during the five year guaranteed period on the pavement on M street laid under both of these contracts?

A. I have.

Q. Before the Barber Company entered into these two con-

tracts what, if any, examination did you make of M street where the pavement was to be laid under those contracts?

181 A. I made an examination.

Q. What kind of pavement was there before?

A. Granite blocks.

Q. What was done with the granite blocks?

A. They were removed, and taken entirely away from the street.

Q. Tell us whether you were there when the blocks were removed, and saw the surface of the street after the blocks had been removed?

Q. I did.

Q. What was the appearance of the street after the granite blocks had been removed so far as relates to conditions for laying asphalt pavement and maintaining it?

A. Immediately under the granite blocks there was a bedding of sand, which was also removed, and under that there was what, I suppose, you call the native soil, which is a kind of rotten rock formation.

Q. Is that rotten rock foundation a good or a bad one for an asphalt pavement?

A. Excellent.

Q. Is that rotten rock foundation peculiar to that street, or is it seen elsewhere?

A. It is peculiar to Georgetown.

Q. To what extent does it obtain in Georgetown?

A. Generally.

Q. What, if anything, did you observe in that street after the original pavement had been removed, as to moisture or water?

A. Nothing unusual.

182 Q. That does not tell us what you observed. You say there was nothing unusual. What was the condition?

A. It was in all respects suitable for laying the concrete foundation for the asphalt pavement.

Mr. THOMAS: I object to the answer as not responsive to the question, and move to strike it out, as a matter of opinion.

By Mr. WORTHINGTON:

Q. That objection is well taken, Mr. Richards. The question is, What was the condition? Was it wet, dry, or medium?

A. I think I said it was dry.

Q. No, you had not said that. As a matter of fact, tell us whether it was dry or not.

A. It was dry. That is, I mean there was no free water. Of course, all sub-soil is moist; but there was no free water there.

Q. What I want to find out is whether there was any unusual moisture there?

A. No, sir.

Q. Tell us whether or not you have, for the Barber Company, laid pavements in other places where there was the same or a greater degree of moisture?

A. I have seen it laid where there was a greater degree of moisture. I do not think I ever saw one that was freer from moisture than that.

Q. What, if anything, did you observe when you went on that street prior to the time the Barber Company laid the pavement, with reference to the smell of illuminating  
183 gas; or any evidence of its presence?

A. Nothing was observed.

Q. Tell us whether or not, at that time, you knew whether there were any illuminating gas pipes under the street?

A. I did not know.

Cross-examination.

By Mr. THOMAS:

Q. At the time that the Barber Company entered into Contract No. 2350 with the District, where was the plant of the Company for making this asphalt mixture?

A. At Twenty-sixth and D streets, northwest.

Q. About how much ground did it cover?

A. I cannot answer that, in square feet.

Q. Can you not give me some idea about how much space your plant covered there at that time?

A. It covered the entire front of the square, fronting on Twenty-sixth street, from D street south to the alley. The D street front was from Twenty-sixth street to another alley, or to the same alley as it appears on the other street.

Q. About how many men were employed there at that time?

A. Thirty.

Q. Did you have charge of those men?

A. Yes, sir.

Q. Did you direct them in their work?

A. Yes.

Q. Did you have immediate charge over them?

184 A. No.

Q. What were your other duties besides looking over the pavements as laid, for the company at that time. Did you have any clerical duties, any duties in seeing about what contracts were entered into, or getting work for the Company, or anything of that kind?

A. No, sir.

Q. Generally speaking, what were your duties at that time?

A. As I have heretofore testified, they were to visit the yard and the street; and in addition, of course, to go at times to the District Building to see that the necessary requisitions for materials, &c., were issued.

Q. Did you have anything to do with keeping the books and accounts of the company?

A. Not during office hours.

Q. Or the supervising of the books and accounts?

A. That was all attended to after the work was finished.

Q. Did you do that?

A. Not the financial records.

Q. Were these the only streets that the Barber Company were paving with asphalt? I mean those mentioned in Contract No. 2350; at that time?

A. Do you mean the portions of M street, or all the other streets?

Q. I mean, were there any other streets, outside of those specified in contract No. 2350, that you were superintending the laying of asphalt on?

185 A. No, sir.

Q. You did not see all of the material that was mixed for each one of these places, did you?

A. Yes, sir.

Q. Did you ever see every bit of it mixed?

A. I did not see every batch of mixture, but I saw the crude materials that were afterwards mixed and went into it.

Q. I am talking about the mixture. Did you see it all mixed and made up?

A. No.

Q. Did you see it all hauled to the street?

A. No.

Q. Did you see it all laid?

A. No.

Q. As I understand you, M street between Thirty-first and Thirty-sixth streets originally, prior to the laying of this asphalt pavement, was a granite block pavement?

A. Yes, sir.

Q. Was there any digging done there under your observation prior to the time the asphalt pavement was laid? Did you see the granite block pavement taken up and the sand removed, and see the foundation of the pavement there?

A. Often.

Q. You were there while it was being dug up were you?

A. Often.

Q. And you say you smelled no illuminating gas?

A. No, I smelled none.



186 Q. You say you did not know whether there were any gas pipes under the street. What do you mean by that?

A. I did not see them.

Q. That is what you mean, that you did not see any?

A. That is it.

Q. You do not usually see gas mains in the streets, do you?

A. Not unless they are opened for some purpose.

Q. Had you any doubt at the time this granite block pavement was being taken up, that there were gas mains under M street between Thirty-first and Thirty-sixth streets?

A. There was no reason to investigate whether there were or not.

Q. Did you doubt that there were gas mains there?

Mr. WORTHINGTON: I object to that question, because there is no evidence so far that the subject was considered, or entered the witness' mind at the time at all.

A. I think I had reason to doubt it, as long as there was no surface appearance or surface evidence of it.

Q. Did you not know that M. street between Thirty-first and Thirty-second streets, was one of the principal streets of Georgetown?

A. Yes, sir.

Q. Did you know that the people did not use gas on M street?

A. Yes, sir.

Q. Did you know that the people did not use gas on M street?

A. I did not.

Q. Did you know that they did?

A. I did not.

Q. You had no knowledge whatever that gas was not used on M street between Thirty-first and Thirty-sixth streets?

187 A. I had no knowledge that it was not used.

Q. Did you have knowledge that it was used?

A. No, sir.

Q. You had no knowledge on the subject one way or the other?

A. I might have had then, but I do not fix it in my mind now.

Q. I am asking what knowledge you had then on the subject. In laying this asphalt pavement on M street, what was it necessary to put down first?

A. A cement concrete foundation.

Q. And what next?

A. The binder course.

Q. And what after that?

A. The asphalt wearing surface.

Q. As I understand it your duty was to go around looking at all these various streets that were being laid with pavement?

A. Yes, sir.

Q. And you did not spend the whole of your time on M street, nor at any particular place?

A. No, sir..

Q. Did you see the M street pavement after it was completed?

A. Yes.

Q. Was that pavement inferior to the pavements that had been laid in the District prior to July first, 1886?

A. No.

Q. Did you examine the site before the bid was put in for the work?

188 A. Yes.

Q. Was that a part of your duty?

A. Yes.

Q. Who made up the bid? Did you make it up? or assist in making it up?

A. I could not say.

Q. Have you no way of refreshing your recollection?

A. Only by the District records, by seeing the proposal.

Q. But you examined the site and reported upon it?

A. I did.

Q. And as a result this bid was put in?

A. Yes.

Q. And whether you made up the bid, you do not remember?

A. That is right.

Q. Did you find any evidences of illuminating gas present there when you examined the site before you put the bid in?

A. No.

Q. You had to do all the necessary grading and trimming of the roadbed before you laid the foundation, did you not, for this asphalt pavement?

A. Yes..

Q. Did you, during that time, detect any leaks in any gas mains, or the presence of any illuminating gas whatever?

A. No.

189 Q. As I understand from your testimony on page 99, your attention was first called to the presence of illuminating gas by Mr. Dow. Is that correct?

A. The facts are correct. I do not remember about the reference.

Q. That is to say, it is true that your attention was first called to illuminating gas by Mr. Dow?

A. That is my recollection.

Q. Can you tell me again whether that was in January, 1902, or when it was?

A. It was in January, 1902.

Q. You say you arrived at that date by referring to a report that you made to your employers, as I find, according to the record at page 101. Have you that report?

A. I have not.

Q. Where is it?

A. I could not tell you.

Q. Have you a copy of it?

A. No, sir.

By Mr. WORTHINGTON:

Q. Do you mean you haven't it here now, or haven't it at your office?

A. It has been mislaid here somewhere.

Mr. THOMAS: I call for the production of that report.

By Mr. THOMAS:

Q. Subject to the production of this report, I will ask you whether your report stated to the company that there were indications of illuminating gas there in that pavement?

190 A. Undoubtedly it did.

Q. Do you remember what part of the pavement that report referred to?

A. Will you allow me to refer to this memorandum?

Q. Yes.

A. (After referring to memorandum) It referred to the pavement on both sides between Thirty-third and Thirty-sixth streets, and to the south side between Thirty-first and Thirty-second streets.

Q. Have you a memorandum of the repairs that you were making at the time that Mr. Dow called your attention to the smell of illuminating gas before mentioned?

A. We were not making repairs at that time, in January, 1902.

Q. How did you come to meet Mr. Dow there at that time?

A. As testified to heretofore, it was by appointment.

Q. You took no specimens in January, 1902?

A. I preserved none.

Q. You had no chemical analyses made in January, 1902.

A. No.

Q. In point of fact, the company did not have anything done about an examination respecting the presence of illuminating gas until about the sixth of May, 1902, did it, when it called

upon Mr. Clifford Richardson to make such an examination? Is not that the fact?

A. I cannot answer as to that.

191 Q. Haven't you the report of the 6th of May, 1902, that Mr. Clifford Richardson made to your company, and did you not produce it here at the session the other day when Mr. Richardson was on the stand?

A. I do not think I did. There may be such a thing here, but I do not think I produced it.

Q. Did you not see it?

A. I have forgotten it if I did.

Mr. THOMAS: I call for the production of the report of Mr. Clifford Richardson to the Barber Asphalt Company, dated the sixth day of May, 1902.

By Mr. THOMAS:

Q. In point of fact, you had written to the Commissioners on January 29th, 1898, making complaint in reference to certain rails laid on M street, but you had not complained of any gas at that time. That is a fact, is it not?

A. That is my recollection.

Q. And on January 14th, 1902, do you not recall that you also wrote the Commissioners that the defective portion of the pavement was almost entirely confined to that portion occupied by the temporary tracks during the reconstruction of the railway, in 1898? Do you recall that?

Mr. WORTHINGTON: I object to the witness being asked about the contents of letters, unless they are produced and exhibited to him.

Mr. THOMAS: Very well. I think that is a good objection, and I produce the letter and show it to Mr. Richards.

At this point, in response to the request of counsel  
192 for the defendant, counsel for the complainant produces and hands to counsel for the defendant report of the witness Clifford Richardson, dated May 6th, 1902, addressed to P. W. Henry, Esq., Vice-President and General Manager of the Barber Asphalt Paving Company, New York.

By Mr. THOMAS:

Q. For the purpose of refreshing your recollection, Mr. Richards, I hand you a letter dated January 14th, 1902, purporting to be from the Barber Asphalt Paving Company, R. M. Richards, superintendent, addressed to the Commissioners of the District of Columbia and ask you whether or not you wrote that letter.

A. I wrote that.

Mr. THOMAS: Do you wish to see that letter, Mr. Worthington?

Mr. WORTHINGTON: Yes, if you please.

By Mr. THOMAS:

Q. Did that letter correctly state that the defective portion of the pavement were almost entirely confined to the portions occupied by the temporary tracks during the reconstruction of the railway in 1898?

A. Probably that "almost entirely" was not exact.

Q. Why was it not exact? When you were writing on this subject to the Commissioners of the District of Columbia why did you not make it exact?

A. That letter was written previous to the time later in the month when illuminating gas was discovered.

Q. I am talking about January 14th, 1902, now, and  
193 not any subsequent period. Did this letter correctly state the situation, or did it incorrectly state it?

A. It generally stated it correctly.

Q. Had you examined this pavement just prior to writing this letter of January 14th, 1902?

A. Yes.

Q. Had you detected at that examination the presence of illuminating gas?

A. No.

Q. As I understand you, you have testified in your direct examination that you were acquainted with the effects of illuminating gas, as indicated on the surface of a pavement, before January 14th, 1902?

A. Yes.

Q. And yet, on or about January 14th, 1902, you had detected no evidences of illuminating gas in this pavement on M street?

A. No.

Q. When did you learn that the only gas main on M street is a three-inch main on the south side of the street?

A. I have never learned it.

Q. Did you ever know that to be the fact?

A. No, sir.

Q. Did you ever inform Mr. Richardson that the only gas main in M street between Thirty-first and Thirty-sixth streets in Georgetown was a three-inch one, on the south side?

A. I have no recollection of it.

Q. Did you ever see this letter, dated May 6th, 1902, from Clifford Richardson to P. W. Henry, which I hand you?

194 A. Your question is, Did I ever see this letter?

Q. Yes.

A. I have no recollection of it.

Q. You have now read it, have you not?

A. I have.

Q. What do you say about the statement in that letter: "I am informed by Mr. Richards that the only gas main in this street is a three-inch one on the south side"?

A. I do not think I ever made the statement, because I know that is not the case today.

Q. What do you know today about where the gas main is?

A. I have seen one uncovered on the north side between Thirty-first and Thirty-second streets within three feet of the curb line.

Q. How long has that main been there?

A. I cannot say.

Q. Was it there apparently before you laid your pavement there?

A. I cannot say.

Q. Do you know of that gas main being put down between the time that you laid your pavement on M street and the time you saw this gas main the other day?

A. Do I know that to be the case?

Q. Yes.

A. No, sir.

Q. You would know whether the pavement had been cut for the purpose of putting a gas main down, would you not?

195 A. I would be very apt to.

Q. And you do not assert that that pavement was cut for the purpose of putting a gas main down, do you?

A. I do not.

Q. I observe in this letter of May 6th, 1902, addressed by Mr. Clifford Richardson to Mr. P. W. Henry, he states: "I am informed by Mr. Richards that the only gas main in this street is a three-inch one on the south side. It would be necessary to open the street to determine whether the joints are leaky. I believe the main is a very old one."

Will you kindly state whether you had that street opened to determine whether that gas main or any gas main that was in it, was leaky or not?

A. I did not.

Q. You do not know, in point of fact, that the gas main leaks, do you?

A. No.

Q. You do not know where the gas comes from, or where it has escaped from?

A. No.

Q. How long had you been familiar with the smell of illu-

minating gas and the indications that it made on pavements prior to the 14th of January, 1902?

A. A few years.

Q. During the lifetime of these two contracts in this case? Prior to January 14th, 1902?

A. I should say so.

Q. How many times do you suppose you examined or  
196 inspected the pavement under these two contracts, after the contracts were entered into and the pavement laid, and prior to the 14th of January, 1902.

A. Ten.

Q. When did you make the first repairs under either contract?

A. That is already a matter of record. December, 1899.

Q. Where did you make that repair?

A. The north side of M street between Thirty-first and Thirty-second streets.

Q. Did you discover any illuminating gas there at that time?

A. No, sir.

Q. When did you make the next repair?

A. September, 1900.

Q. Where did you make that?

A. On the same piece of pavement.

Q. Did you discover any illuminating gas then?

A. No, sir.

Q. When did you make the next repair?

A. September, 1901.

Q. Where did you make that?

A. On M street between Thirty-second and Thirty-third streets.

Q. Did you discover any illuminating gas at that time?

A. No, sir.

Q. When did you make the next repair?

A. In May, 1902.

197 Q. And where did you make that repair?

A. On the north side between Thirty-first and Thirty-second streets; on the south side between Thirty-first and Thirty-second streets; between Thirty-second and Thirty-third, and between Thirty-Third and Thirty-sixth streets.

Q. Did you detect the presence of illuminating gas at that time?

A. Oh, yes.

Q. Did the Barber Company, while you were superintendent, lay asphalt pavement on Executive Avenue?

A. Yes, sir. The pavement I refer to was between the Treas-



ury Department and the White House. Executive Avenue is a very indefinite street.

By Mr. WORTHINGTON:

Q. Between the Treasury Department and the White House would be on the interior walk there?

A. No; there is a roadway, running north and south.

Q. That is what you mean. You do not mean what we call Pennsylvania Avenue, running between the White House  
198 and Lafayette Square?

A. No. I mean the roadway running north and south.

By Mr. THOMAS:

Q. Did your company resurface that pavement at its own expense.

A. Yes, it resurfaced it; put the asphalt surface on it.

Q. When was that done, do you remember?

A. I do not remember.

Q. Why was that done? Why did your company resurface that?

Mr. WORTHINGTON: If you know of your own knowledge?

A. I should think it is of my own knowledge, that the original pavement there was of a bituminous base, and the sub-grade was very poor, spongy and full of water, which seeped through from the terraces of the White House grounds. It was insufficient to maintain the asphalt roadway pavement, and it went to wreck during the guaranteed period. The question of maintenance was a subject of compromise between the District authorities and the Barber Asphalt Company. The Commissioners paid for removing the original pavement and putting a new hydraulic concrete base in, and the Barber Company put an asphalt surface on it, and probably a binder.

Q. The trouble with that pavement was that the pavement was disintegrated by water, was it not?

A. That was a trouble, but not the only trouble.

Q. Was there any illuminating gas in that pavement?

A. It was never discovered, to my knowledge. I want to state there, Mr. Thomas, that in addition to the District  
199 putting a concrete base in the renewal, they sub-drained it, which was never attempted under the original contract.

Q. That was to keep the water from it, was it not?

A. Yes, sir; I suppose so.

Q. Has not the pavement acted badly since then?

A. It has acted badly, but not like the first pavement.

Q. In other words, the effect of water upon the pavement,

notwithstanding the fact that it was sub-drained, has been a detriment to the pavement?

A. Oh, yes.

Q. Have not parts of it rotted like the M street pavement?

A. Not in the same way.

Q. Will you please state whether the Barber Company has done paving on other streets where temporary railway tracks have been laid?

A. I have no recollection that the pavements, while under guarantee by the Barber Company, were ever temporarily occupied by railway tracks.

Q. Do you recall that Pennsylvania Avenue, between the Peace Monument and Sixth street, was used by laying temporary tracks upon it?

A. My best recollection is that the temporary tracks there were laid on boards, which covered the asphalt pavement.

Q. Did that pavement require any resurfacing on that account?

A. That I cannot say. It required repairs at the end of the guaranteed period, but what the cause for it was I cannot say. The District went through there however, and cut out these spike holes and put in fresh stuff, at its own expense.

Q. You know that?

A. Yes, sir. That is, I know it because the Barber Company did not pay for it.

Q. Do you know that the District cut out any spike holes there?

A. Yes, sir.

Q. Do you recall how the temporary track on M street was laid?

A. I do.

Q. Do you recall that these tracks were laid on plates which were not spiked down to the pavement?

A. The plates were not spiked. The plates were under the joints of the rails.

Q. Do you recall that the rails laid on these flat plates, and were tied together by iron cross rods, and that the track was maintained on the pavement without being spiked down, being held by its own weight?

A. I do not.

Q. Do you know whether that is so or not?

A. My recollection is that it is not so.

Q. Would you state positively that it was not so?

A. I will state positively that it is not a fact that it was maintained without the use of spiking through the asphalt surface.

Q. Where were the spikes driven, do you say?

A. Both sides of the rails.

201 Q. Do you mean to say that the spikes were driven right alongside of the rails, at a measured distance apart?

A. Not at measured distances, no.

Q. Well, I want to get your idea. Give me some rule to go by.

A. I have testified that I thought they were at intervals of about two feet.

Q. And you are as certain of that as of anything else that you have testified to, are you?

A. Oh, no; because I have written memoranda of a great deal of it, and of this I have not.

Q. You deny then that it is a fact that these rails were laid on plates, and that the track was held by its own weight.

A. I deny that it was maintained without the use of spikes.

Q. What I am trying to get from you is the number of spikes and the character of the spiking. I want to see what you know about that, and what you are willing to state about it.

A. I have said, Mr. Thomas, that there were spikes to my recollection at intervals of about two feet.

Mr. WORTHINGTON: On each side of each rail.

By Mr. THOMAS:

Q. Do you not recall that the railway people kept a force of men on hand to push the rails up when they would slide towards the curb?

202 A. I suppose that was one of their duties. They had a force there to maintain that temporary track.

Q. Do you not recall that the sliding occurred because the rails were not spiked?

A. No, sir; I recall that they could not be maintained even with the spiking.

Q. You say there were more than a few spikes used on the railway tracks?

A. Yes, sir.

Q. Can you tell me of any spot that was repaired because of any spike holes in this pavement?

A. I cannot locate a spot.

Q. You have located places where you say gas had operated on the pavement. Why is it you cannot tell me of some place where the pavement was repaired because of the existence of a spike hole, or holes?

A. Simply because no record was made of it.

Q. In response to your communication of January 14, 1902, you met Mr. Dow at this place, did you not?

A. Probably. It was soon after that.

Q. I will ask you whether or not you agreed with Mr. Dow at that time that none of the defects in the pavement were due to the temporary tracks?

A. I think I did not.

Q. Did you not so state to him?

A. To the best of my recollection, no.

Q. Did you not further state to him that you believed that inasmuch as the District allowed the pavement which was under guarantee to be used for a purpose that was liable to weaken it, that such a procedure on the part of the District relieved the Barber Company from the responsibility for the maintenance of the pavement?

203

A. Probably I did.

Q. And was it not in the same connection that you told him that time that there was no defect present in the pavement due to temporary tracks?

A. I cannot admit that I agreed with him that there was no injury by those temporary tracks.

Q. Can you state any place that you pointed out to Professor Dow at that time that had been injured by temporary tracks?

A. I cannot.

Q. What was your purpose in going over there to meet him?

A. I stated that it was to see to what extent the District would require repairs to be made in order to make it acceptable.

Q. Did you not intend to indicate to him the places in the pavement that you claimed were made defective by the use of temporary tracks?

A. No, sir; that was too long afterward.

Q. Why was it too long afterward at the time you went there to meet Professor Dow, to indicate any place where the M street pavement had been injured by the laying of the temporary tracks upon it?

A. It is not at all certain that after the use of the pavement for that length of time the surface was discernible. It was covered with the ordinary street filth.

Q. I am not asking you for an opinion. I am asking you for your recollection. Could you see, at the time you were there with Professor Dow, any indications in the pavement, of injury by the laying of the railway tracks; and if so, what were they?

204

A. I did not see any indications.

Q. I will read from the report made by Professor Dow to the District Commissioners, and ask you whether this statement is correct or not. I refer to report next after that under date of January 31, 1898: "I have looked over the above pavement with Mr. R. M. Richards, representative of the Barber

Asphalt Paving Co. I have found a few depressions, one spike hole about one inch in diameter, and a crevice between the brick gutter and asphalt about one foot long by one inch wide, that the railroad company can be held responsible for. The defects are too small to call for repair, and I believe that they will all be effaced during the coming summer."

Mr. WORTHINGTON: I object to the aspect of this question, by which it is sought, apparently, to get in the report of Professor Dow, which has been read from, as evidence in the case.

The WITNESS: I cannot agree with the whole of that. I can agree with parts of it, but not all of it.

By Mr. THOMAS:

Q. Do you agree with this part: that there were few depressions, one spike hole about one inch in diameter, and a crevice about one foot long by one inch wide?

A. I agree with all except the description of the defects.

205 What defects?

A. Such as he has described.

Q. Is that a fair description of the defects?

A. So far as it goes, I should say it is.

Q. What other defects were there?

A. He limits the number of them. I cannot agree now that that was all.

Q. Do you know that there were any more?

A. I have no positive recollection of them now. No count was made of them.

Q. Have you any recollection that there were any more?

A. No, sir.

Q. Did you not receive, subsequent to the examination made by you and Professor Dow [in January, 1898] of this pavement, a communication dated April 13, 1898, from the Commissioners of the District of Columbia, in which the Commissioners claimed that the defects or damage due to the action of the Capital Traction Company were too small and unimportant to require any special attention?

Mr. WORTHINGTON: I object to the question on the ground that the statements of the Commissioners are not evidence in favor of the District.

The WITNESS: I do not remember it now.

Mr. THOMAS: I call for the production of the letter.

By Mr. THOMAS:

Q. Were you present when the District Authorities removed

the surface and the binder and exposed the concrete base of the M street pavement?

206 A. Yes, sir.

Q. What was the condition of the concrete base at that time?

A. It presented a very unusual appearance. It was stained on the surface, and in very many instances there was a bluish slime covering it. When the slime was removed with the fingers and presented to the nose, it smelled of illuminating gas.

Q. When you speak of slime, you mean moisture, and water?

A. Yes, sir; moisture.

Q. Was there considerable of that moisture?

A. There was considerable, yes.

Q. That was on the upper surface of the concrete base?

A. Yes.

Q. Showing that it had penetrated the base?

A. I could not say that.

Q. Do you mean to say that the whole of the concrete base where it was exposed was discolored?

A. So nearly all that I will say the whole.

Q. You would deny that fifty yards would comprise the whole extent of the discoloration?

A. On the whole street that was repaired?

Q. Yes.

A. I would.

Q. When you made these repairs to the pavement in 1902, and the other dates that you have given, you may state how you found the concrete base with respect to moisture?

A. I have no recollection.

207 Q. You do not remember anything about it?

A. No, sir.

Q. When was it that the District took this pavement up?

A. In November, 1902, and in September, 1903.

Q. To what date were you referring when you spoke of the existence of the slime and the moisture, to November 1902, or September, 1903, or both?

A. Both—especially on the north side of M street at Thirty-fourth street and west thereof.

Q. At what time?

A. Do you mean whether in 1902 or 1903?

Q. Yes, sir.

A. In November, 1902.

#### Redirect Examination.

By Mr. WORTHINGTON:

Q. It appears that the contract No. 2350 refers to paving portions of a number of streets in Washington. Was that

work all done at once, or did you take one or two streets at a time, or how?

A. They were going on consecutively, you know. The grading was probably going on on one street, the concrete base on another, and the asphalt following it up.

Q. The men who would do the grading would grade one street and then go to another?

A. Yes.

Q. And their places would be taken by the men who put in the concrete base, and so on?

208 A. Yes, sir.

Mr. WORTHINGTON: Counsel for the defendant having read in evidence a part of an endorsement made by Professor Dow upon Mr. Richards' letter of January 14, 1902, I offer in evidence the whole of that endorsement, which is dated January 23rd, 1902.

Counsel for the defendant having read in evidence part of the letter of May 6th, 1902, from the witness Clifford Richardson to P. W. Henry, Vice-President of the plaintiff company, I offer in evidence the whole letter.

It is agreed by and between counsel that instead of filing the originals of the above mentioned endorsement and letter, the same may be copied into the record by the Examiner in place of the originals, and they are in the words and figures following, to wit:

"2nd Endorsement.

*January 23, 1902.*

Respectfully forwarded to the Engineer Commissioner, D. C. stating that I looked over M street N. W. between 33rd and 36th streets on the 17th inst., in company with Mr. R. M. Richards, representative of the Barber Asphalt Paving Co.

I could find no defects whatever that could be traced in any way to the occupation of this pavement by temporary tracks. Mr. Richards agreed with me that none of the present defects in the pavement were due to the temporary tracks, but he believed that inasmuch as the District allowed the pavement which was under guarantee to be used for a purpose that was

209 liable to weaken it that such a procedure on the part of the District relieved them from the responsibility for the maintenance of the pavement. From the superficial examination that I made of this pavement I am of the belief that much the greater part should be resurfaced as it is rotting badly from illuminating gas and from water soaking up through the concrete base. I would recommend that the Sup't

of Repairs to pavement make a thorough examination of this pavement, and that the paving company be requested to replace all material that is not at present in a sound condition.

Respectfully,

A. W. DOW,  
*Inspector of Asphalts & Cements.*

New York Testing Laboratory,  
Clifford Richardson,  
Director.

(Rubber stamp:  
P. W. Henry,  
May 13, 1902

LONG ISLAND CITY, N. Y., May 6, 1902.  
(Rubber stamp: May 7 Recd.

P. W. Henry  
V-Pres. & Gen. Mgr.,  
The B. A. P. Co. New York.

Dear Sir:

#### ACTION OF GAS ON M STREET, WASHINGTON.

In accordance with your instructions I yesterday examined the pavement laid by the Barber Asphalt Paving Co. on M street, Georgetown, D. C., between 31st and 36th streets.

210 I found it to be very seriously disintegrated and that this was specially due to the action of illuminating gas. The softening of the bitumen by the gas has resulted in washing much of the sand and binder free from asphalt cement by water.

I am informed by Mr. Richards that the only gas main in this street is a three-inch one on the south side. It would be necessary to open the street to determine whether the joints are leaky. I believe the main is a very old one.

I think it is accepted that the deterioration of the pavement is due to the action of illuminating gas, but that the gas company denies responsibility for this.

Very truly yours,  
CLIFFORD RICHARDSON.

The further taking of these depositions was thereupon adjourned until Monday, July 11, 1904, at 11 o'clock a. m.

211 WASHINGTON, D.C., July 11th, 1904—11.30 o'clock a.m.

Met pursuant to adjournment.

Present on behalf of the complainant, Mr. WORTHINGTON.  
Present on behalf of the defendant, Mr. THOMAS.



Whereupon, WILLIAM H. LOBER, a witness of lawful age, called by and on behalf of the complainant, having been first duly sworn, is examined,

By Mr. WORTHINGTON:

Q. What is your age, Mr. Lober?

A. 49 years.

Q. Where do you live?

A. Ardmore, Montgomery County, Pennsylvania.

Q. Near Philadelphia, Pennsylvania?

A. Yes, sir; near Philadelphia.

Q. What is your present occupation?

A. I am general inspector of the Barber Asphalt Paving Company.

Q. How long have you been connected with that company, or with any company whose business it was to lay asphalt pavements in cities?

A. Nearly nineteen years.

Q. I wish you would state, in a general way, the different positions you have held, and what your duties have been?

212 A. I have been foreman of the various branches, of grading, concrete construction, and the laying of the top. I was, for several years, yard foreman, engaged in the mixing and preparing of the material to be sent to the streets, and also superintendent in charge of construction and repairs. I have also been general inspector. That is my present business.

Q. In a general way, what are the duties of your present position?

A. I have charge of the operating department of the Barber Asphalt Paving Company.

Q. What does that require you to do?

A. That requires me to take charge of the general operations, everywhere.

Q. All over the country?

A. All over the country.

Q. Is the business of that company small or extensive?

A. It extends to nearly every State in the Union.

Q. Where are the headquarters of the company now?

A. In the Land Title Building, Philadelphia, Pennsylvania.

Q. Is that where your office is situated?

A. Yes, sir.

Q. How long have you held that place?

A. Since the first of last February.

Q. During these 19 years, have you been connected with this one company or with other companies?

213 A. Mostly with this company, though for eight years I was the general superintendent of the Vulcanite Paving Company, of Philadelphia.

Q. Was that company engaged in the same business?

A. It was engaged in the same business, yes sir.

Q. During these 19 years, what, if any, opportunities have you had to observe the causes that injure asphalt pavements, as they have been laid in cities during that time?

A. It has been my business most of that time to study and to endeavor to find remedies for the defects that have appeared in the pavements—causes of repairs.

Q. What, if anything, have you learned in that way as to the effect of illuminating gas, such as is used in our American cities, upon these asphalt pavements?

Mr. THOMAS: I want to save the point, that it has not sufficiently developed that the witness is qualified to express an opinion.

Mr. WORTHINGTON: Counsel for complainant invites counsel for the defendant, if he pleases, to cross-examine the witness on this subject before he proceeds with the further examination of the witness.

By Mr. THOMAS:

Q. Mr. Lober, are you a chemist by profession?

A. No, sir.

Q. Are you a civil engineer?

A. No, sir.

Q. Where have your headquarters been located for the 19 years that you have been connected with the Barber  
214 Asphalt Paving Company?

A. Originally in Philadelphia; afterwards in New Orleans; after that in Omaha, Topeka, Wichita, St. Louis, Galveston, and then in Philadelphia, again. Practically all over the country.

Q. Except Washington. You have never been located here?

A. Last year I had general charge of Washington. I was at that time district manager of the Barber Company, and Washington was in my territory.

Q. Are you able to tell the percentage of illuminating gas that permeates any particular pavement?

A. No, sir.

Mr. WORTHINGTON: Do you not think that is traveling a little outside of the present purpose of the examination, which

is simply to examine the witness as to his qualifications as an expert?

Mr. THOMAS: I thought it was in that line; but if you will consent I will reserve what I want to ask until you have finished your examination.

Mr. WORTHINGTON: Very well.

By Mr. WORTHINGTON:

Q. Please tell us what, if anything, you have observed in the course of business, which you have described, as to the effect, if any, which illuminating gas has upon asphalt pavements?

A. It has the effect of softening the pavement. It has the effect of cutting the cementing material and softening it, so that it will leave the mixture, and the pavement will  
215 then go into what are called nodules. Cracks will appear laterally, and crosswise as well; and it will go into small pieces. If you take those out you will always find a very strong odor of illuminating gas. If it has a concrete base you will find a bluish tinge over the concrete, and you will in some cases find—according to how far the action has gone—as I have found in some cases, that the sand is perfectly clean as if there had never been any cementing material on it at all.

Q. Is this a thing that you have found to happen frequently or infrequently?

A. It is a thing that is coming up in different cities of the country, constantly.

Q. Can you give us any particular illustrations of this subject?

A. In 1890 I took charge of the operations of the Barber Company, in the city of Chicago——

Mr. THOMAS: Objected to.

The WITNESS (continuing): There is a street there called Dearborn Avenue, which was still under guarantee by the Barber Company, and upon which we had more or less trouble with the pavement. That pavement was acted on by illuminating gas. You could find all the points I have mentioned in that pavement; and eventually it was necessary to resurface it, the gas company going all over their mains. In fact, my recollection is that there were two gas companies that had mains in that street, and they were all dug up, and largely relaid, and were gone over completely. After that there never was any trouble from gas on Dearborn Avenue. I have never heard of  
any trouble since.

216 Mr. THOMAS: I move to strike out the answer on the ground that the conditions existing in the pavement there are not the same as those which exist in this case.

By Mr. WORTHINGTON:

Q. How is it in Philadelphia?

Mr. THOMAS: The same objection.

A. The question comes up quite frequently in Philadelphia. The same effect appears in the pavements, but the gas company there, when its attention is called to the trouble, always remedies it, and after the leaks have been attended to and the gas is stopped, the trouble stops.

Mr. THOMAS: I move to strike the answer out.

By Mr. WORTHINGTON:

Q. Did you at any time make any examination of the asphalt pavement on M street, northwest, in this city, between Thirty-first and Thirty-sixth streets?

A. Yes, sir; I did.

Q. When did you make the examination?

A. About the first of May, 1902.

Q. You may refresh your recollection, if you please, by looking at this letter, dated May 5th, 1902, purporting to be signed by you, and addressed to Mr. P. W. Henry, Vice-President of the Barber Asphalt Paving Company.

A. That is a letter I wrote at that time.

Q. Upon looking at that letter, will you be able to tell me the exact date on which you made the examination?

A. I could not tell you any closer, without looking at a calendar. This letter was written on May 5th, and the examination, as the letter states, was on the Friday previous.

217 Q. It was on the Friday previous to the 5th of May, 1902?

A. Yes.

Mr. THOMAS: May I see that letter?

At the request of counsel for the defendant, counsel for the complainant hands letter to counsel for the defendant, for examination.

Mr. WORTHINGTON: Since counsel for defendant has asked to see the letter, counsel for complainant offers it in evidence.

Mr. THOMAS: Of course I object to the letter.

Mr. WORTHINGTON: I concede that if the letter is objected to, it is not competent evidence, at this stage of the case at least, and I withdraw the offer.

By Mr. WORTHINGTON:

Q. When you made this examination of the M street pave-

ment in the early part of May, 1902, were you alone, or in company with anybody else?

A. Mr. Eugene George Schwendeman and Mr. Richards were present with me.

Q. State what examination you made, and what the result was?

A. We walked over the pavement for four or five blocks, I should say this way (indicating). I am not familiar enough with the locality to tell; but we went out as far as the car barn. We then walked back four or five blocks from that point, over both sides of the pavement, and wherever we saw a defective place we examined it. We had a hatchet with  
218 us, and we would take out places from four to six inches square, or in diameter, and examine the condition of the base and of the top, and of the binder. We found in quite a number of instances, that the binder stone had been acted on by the gas to such an extent that it was entirely clear of asphalt cement—or the cementing material—and this was lying on top of the binder as if it had been washed off from the stone. The stone was scarcely stained. The odor of illuminating gas was very strong. In any piece of the material you would pick up, you would instantly detect the odor; and the concrete was of the bluish tinge which I have before spoken of. In some places there was a dampish sort of slime that seems to come in cases of that character, and there were all the indications that we usually find where we find illuminating gas acting on a pavement.

Q. I wish you would explain a little more fully what you mean by a bluish sort of slime that comes in cases of that character.

A. The concrete, where the gas is escaping through it, has a bluish cast, under the pavement. You always find it when you take up a pavement that gas has been acting on; and there is sometimes a sort of a dampish slime. There is not much of it. It is more of a sweating of the pavement, a condensation, than anything else.

Q. On what part of the pavement do you find it?

A. On top of the concrete.

Q. And under the surface?

A. Under the surface, yes, sir.

219 Q. On what parts of the four or five blocks which you examined in this way did you find indications of this kind? Give it as nearly as you can.

A. Oh, in every block there was more or less of it. There would be places from a foot square, where it had just commenced to act, up to places that would be five or ten feet long

and two or three feet wide. They were scattered all through the block.

Q. On these four or five blocks which you examined, did you make your examination wherever you found an appearance of defective pavement?

A. In practically all of them, so far as I remember; yes, sir.

Q. In what proportion of the places where you made your examination, did you find the appearance you have described?

A. In all of them.

Q. From your experience and knowledge of these things, what would you say was the cause of the bad condition of the pavement, where it was bad?

Mr. THOMAS: The question is objected to.

A. I should say the cause was illuminating gas acting on the pavement.

By Mr. WORTHINGTON:

Q. In your experience, is there anything which will produce the condition of things that you found there, except illuminating gas?

A. I have never found anything that would act in that way except illuminating gas.

220 Mr. THOMAS: I object to that and move to strike it out on the ground that the witness is not an expert, and is not qualified to express an opinion.

By Mr. WORTHINGTON:

Q. What evidence did you find there, if any, as to any other cause which would account for the bad condition of the pavement where it was bad, either alone or as operating with illuminating gas?

A. There was no evidence of anything that was wrong with the pavement, except that.

Q. Mr. Lober, in view of the objections that are made here as to your competency to testify on this subject, I wish you would tell me if you can in about how many instances, in various places, you have observed this appearance in pavements and have found the smell of illuminating gas accompanying it, resulting from gas?

Mr. THOMAS: Are you speaking of this pavement?

Mr. WORTHINGTON: Anywhere.

A. The first instance that is clearly in my mind is that of Dearborn Avenue, in Chicago. I also ran across a case in Chat-

tanooga, Tennessee, in February of this year. In Philadelphia there have been a great many cases.

By Mr. WORTHINGTON:

Q. About how many? Give us an idea of the number of bad spots in pavements in Philadelphia that you have known to be caused by this illuminating gas, and to have exhibited these symptoms.

A. I should say, a dozen. Of course it is a thing that is coming up every once in a while, and I keep no record of  
221 it at all.

Q. Did you preserve any of the specimens which you and Mr. Schwendeman cut up from the pavement?

A. No, sir; I did not.

Q. Did you make a report to your principal, the Barber Company, immediately after your examination, of what you had discovered?

A. I did, yes sir.

Cross-examination.

By Mr. THOMAS:

Q. When did you say this pavement on Dearborn Avenue in Chicago was disintegrated, Mr. Lober?

A. In my experience it extended between 1890 and 1895. They were having constant trouble with it.

Q. Did you lay the pavement on that street?

A. No, sir.

Q. Were you familiar with the character of foundation that was under the sheet asphalt there?

A. Yes, sir; I saw it frequently, in cutting out to replace portions that had been destroyed.

Q. You were not present when the asphalt there was mixed?

A. No, sir.

Q. How did you detect the presence of gas in Dearborn Avenue, Chicago?

A. By the odor, the appearance of the concrete, and its action on the asphalt mixture.

222 Q. You say this was in 1895?

A. It extended all the way from 1890 to 1895.

Q. Can you not give me any better answer about the time than that?

A. It was a constant thing every year, all through the year.

Q. Will anything else but gas break down an asphalt pavement?

A. Will anything but gas?

Q. Yes.

A. Yes, sir.

Q. What other things will disintegrate a pavement of that kind?

A. Gasolene would do it.

Q. Would fire do it?

A. Fire would do it.

Q. Would water do it?

A. Water would do it if it could get into it so that it could act on it.

Q. Anything else?

A. Acids.

Q. Would mortar do it?

A. Mortar would.

Q. Was there a railroad laid on Dearborn Avenue?

A. No, sir.

Q. Was the concrete laid up to the edge of the gutter on that street?

A. Yes, sir.

223 Q. Do you know that the asphalt that was laid on that street was properly mixed of your personal knowledge?

A. I was not present when it was mixed; no, sir.

Q. Do you know of your personal knowledge that neither acid, nor gasolene, nor fire, nor water, nor any of the other things that you have mentioned, reached and affected that pavement?

A. It would be impossible for me to know that there was never any of those things on that pavement. The evidence of the action of illuminating gas was very plain.

Q. That is your opinion. I am asking about the other things that might have affected the pavement.

A. The other things would act in a different way.

Q. Do you mean to say, for instance, that the parallel lines are only found on a pavement that has been affected by illuminating gas?

A. No, sir.

Q. What other things will cause those lines to appear?

A. A pavement that gets very thin and which is going to crack out, would act in that way; and that is the reason they appear with illuminating gas. The gas acts on the cement so that it cuts out everything except the skim over the surface, and that cracks in that way on that account.

Q. Anything that would thin out the pavement would make the pavement act in that way? You say those lines would be caused by the thinning of the pavement?

A. I said a very thin pavement would act in that way.



Q. Would a pavement with a poor foundation act in that way?

224 A. A pavement with a poor foundation would not necessarily act in that way. The Dearborn Avenue foundation was a very good one, as good as I ever saw.

Q. Will you say that if a pavement were not properly supported by its base, if an asphalt pavement were laid right directly upon a road without foundation, it would break undoubtedly into lines along the lines of traffic?

A. That would depend entirely upon the thickness that was laid there.

Q. You are not a chemist, I believe?

A. No, sir.

Q. Then you do not agree with Professor Cushman, a chemist called by the Barber Asphalt Company in this case, when he says in answer to this question: "Q. So far as you know is there any other cause of the disintegration of asphalt pavements, which causes the same appearance in the pavement as that which you have described in this pavement as resulting from the action of illuminating gas?" "A. Yes; if a pavement were not properly supported by its base; if an asphalt pavement were laid right directly upon a road without foundation it would undoubtedly break in lines along the lines of traffic. That is only common sense."

A. I would say as I answered before, that it would depend entirely upon the thickness with which you laid the asphalt there.

Q. The question is whether you agree with Professor Cushman or not.

Mr. WORTHINGTON: I object. I insist that the witness has answered the question properly, and object to any attempt to compel him to answer in any particular way.

225 By Mr. THOMAS:

Q. Will you be kind enough to tell me whether you agree with Professor Cushman or not?

A. If the top of a pavement is thin, of course, if it was not supported by a base it would go that way, and it would go that way if it was supported by a base. If there was sufficient thickness there, it would not go.

Q. Would it go that way if there were blisters, or if places where the air had not been excluded in rolling the pavement, had been left?

A. That is a new one on me. I never heard of that before. I cannot conceive how it is possible for air to remain under an asphalt pavement after it has been rolled with a heavy roller.

Q. Will you tell me whether the injurious effect of illuminating gas is increased or diminished by the presence of moisture, or water?

A. I should say it was increased.

Q. Will you state that if a pavement is not properly laid on the proper foundation, under traffic it is very apt to break up in the lines of traffic, or not?

A. It is very apt to break up. It all depends on what the trouble with the foundation is, in the laying of the pavement.

Q. The question is, Is it very apt to break up in the lines of traffic?

Mr. WORTHINGTON: He says that depends on what the trouble is.

226 Mr. THOMAS: I know what he says, Mr. Worthington.

The WITNESS: I do not just understand your question. I do not know what you mean by the lines of traffic.

By Mr. THOMAS:

Q. I mean these parallel lines that you have been speaking about.

A. No, sir; no more than it is in any other way. It is liable to break up under such conditions.

Q. I read to you from the testimony of Professor Cushman at page 69, in which he says: "I admit that if a pavement is not properly laid on the proper foundation, under traffic it is very apt to break up in the lines of traffic", and ask you whether you agree with that statement or not.

A. I would have to answer that by saying that it would depend entirely upon what were the causes of the breaking up, and what was the matter with the foundation, and also upon what he meant by "properly laid."

Q. Under what conditions of improper laying would the lines of traffic cause the pavement to show this appearance of parallel lines on the surface of the pavement?

A. If there is a thin foundation, and a thin top, I can conceive that that thing might happen.

Q. Did you examine the foundation of the pavement on M street, to see its depth?

A. No, sir.

Q. You cannot say then whether or not it was of sufficient thickness to prevent the injury of the pavement by action of water, can you?

227 A. It had every appearance of having a first class base, hard and firm.

Q. You judge that from your outside inspection by the eye, do you?

A. Yes, sir.

Q. Have you read the specification under which the foundation was laid?

A. No, sir.

Q. You do not know then of what it was composed?

A. No, sir; I never read the specification.

Q. Over what period of time did you observe these dozen cases in Philadelphia, about which you have spoken, in reference to the action of gas upon the asphalt pavement?

A. It covered a period of eight years.

Q. Commencing when?

A. Commencing the first day of April, 1896, and ending February first, 1904.

Q. Had you laid those pavements in Philadelphia?

A. Some of them.

Q. Had you laid the pavement in Chattanooga?

A. No, sir.

Q. Was this pavement in Chattanooga of Trinidad asphalt?

A. Yes, sir.

Q. Were all the pavements in Philadelphia Trinidad asphalt pavements?

A. Yes, sir.

Q. Was this Dearborn Avenue pavement in Chicago  
228 laid of Trinidad asphalt?

A. Yes, sir.

Q. Will you be kind enough to tell me, if you can, how long it has been known to those who make a business of laying pavements in city streets, that there is liable to be a leakage of gas where gas mains are laid?

A. Ever since pavements were laid, I think.

Q. When did you first commence to investigate the subject of pavements?

A. I first went into the business in 1885.

Q. Was it known then, and were you then informed that where gas mains were laid in city streets there was liability of leakage from gas mains?

A. I was never so informed. I gained whatever knowledge I had upon the subject from experience.

Q. You did not know?

A. I knew that a gas main was liable to leak, no matter where it is.

Q. Is it not a fact that a gas main will leak without any hole in it, and that it is hardly possible to practically stop a gas main so as to prevent the leakage of gas from it?

A. No, sir; I do not know that.

Q. Have you known of the presence of gas in city streets

where no leak in a main was detected, and where none could be found?

A. I have known them to have to hunt for some time, but they always found the leak.

229 Q. You mean to say then that there is no leakage of illuminating gas except in places in city streets where the leaks can be found?

A. They can be found if they hunt long enough for them.

Q. Do you know where the gas came from that you smelled on M street?

A. No, sir. I know it was there.

Q. You do not know whether it came from a house or from the street?

A. I do not know where it came from. I know it was there.

Q. Do you know how long it had been there?

A. No, sir; it was there the day I examined the pavement, and that is all I know about it.

Q. From your examination of the pavement, can you tell how long the gas had been in the pavement?

A. No, sir.

Q. Do you know of any way of telling that?

A. No, sir.

Q. Did you ever hear of any?

A. No, sir.

Q. Did you detect the presence of water in this pavement?

A. No, sir.

Q. Do you say there was no water in the pavement?

A. No, sir.

230 Q. Do you say that the disintegration of the pavement was not caused in part if not wholly, by the presence of water?

A. No, sir; I say it was caused by the presence of illuminating gas.

Q. Do you say that water had nothing to do with it?

A. No.

Q. Do you say that water had anything to do with it?

A. I did not see any evidence of water there. I do not say there was no water there.

Q. You say you did not take any samples?

A. I did not.

Q. Can you tell me the particular places on M street that you examined, in detail?

A. I can not; no, sir.

Q. This you say was in May, 1902?

A. Yes, sir.

Q. When did you next have your attention called to this matter?

A. Last Saturday a week—July 2nd. I was in Professor Richardson's laboratory, and he said he had been in Washington on this case, and that they were going to call me.

Q. You had not refreshed your recollection in the meantime; had you?

A. No, sir. I got the report which I had made to the company at that time.

Q. You have no memorandum of the particular spots on M street where you found gas?

A. No, sir.

231 Q. How did you detect the presence of gas in this pavement?

A. By the odor, and by the manner in which it had acted on the pavement. The odor was very plain.

Q. Mr. Lober, did you make this examination of this pavement before or after Mr. Clifford Richardson took his samples of the pavement?

A. I really do not know. I don't know when he made his examination.

Q. Did you learn from your conversation with him the other day that he had made an examination and had taken samples from this pavement?

A. No, sir. All he told me was that he had been in Washington. I was asking him where he had been, and he told me he had been in Washington and had just returned, and that he had been here on the M street case. Beyond that he told me nothing at all, except to say that they were going to want me.

Q. If you were informed that he had testified in this case that water was present in this pavement, would that change your testimony about what you found or saw in this pavement in May, 1902, when you made an examination?

A. No. I have already answered the question that if there was water present, the water acting as well as the illuminating gas, that the action would be more rapid.

Q. Would you say that in a natural cement base, water would come up from the bottom of the binder and soften the pavement, as a general rule?

232 Mr. WORTHINGTON: Do you mean up through the base?

Mr. THOMAS: Yes; and come up to the bottom of the binder.

A. That might be the case with some natural cements. It would not be with others. There are quite a variety of natural cements.

By Mr. THOMAS:

Q. Still, you are not a chemist, I understand?

A. No, sir.

Q. You cannot tell me what percentage of illuminating gas was in that pavement?

A. No, sir.

Q. Nor when it got there?

A. No, sir.

Q. Nor how it got there?

A. No, sir.

Q. Nor where it came from?

A. No, sir.

Q. I want to ask you, Mr. Lober, whether or not, in your experience, you have found that water will injure an asphalt pavement?

A. Yes, sir; if the pavement is porous so that the water can get into it, it will injure it.

Q. Do you know whether street-sprinkling and flushing of asphalt pavements have been deemed to be inadvisable?

A. Deemed to be inadvisable?

Q. Yes, sir.

A. They are doing it everywhere that I am familiar with.

233 Q. Do you know that the droppings from horses, and the ammonia that is made thereby, will injure an asphalt pavement, and thin it?

A. If it is where it will lay on the pavement, and the pavement is at all porous, so as to allow it to get into it, it will injure it.

Q. Are not all of these pavements more or less porous?

A. No, sir. It depends on the way the mixture is made.

Q. Who can tell that after the pavement is down?

A. Tell whether it was properly made?

Q. Yes.

A. It can only be done by analysis.

Q. How are the cavities appearing in the surfaces of asphalt pavements, created?

A. How are they created?

Q. Yes.

A. If the mixture is not properly proportioned the cavities will appear; and yet in some mixtures, perfectly well proportioned and graded mixtures, there will be no cavities, at least none visible to the naked eye.

Q. Is it not a common experience that all asphalt pavements have cavities, more or less, where water will accumulate after rains?

A. No, sir.

Q. Have you not seen, after the rains of yesterday and to-

234 day, in the asphalt pavement on the streets of the city of Washington, places where the surface holds pools of water, more or less large in size?

A. You are talking about pools on the surface of the pavement?

Q. Yes, sir.

A. Oh, yes. That is due to inequality in the pavement.

Q. Will not the action of this water, and the action of the ammonia, injure the pavement and thin it?

A. No; because if it is a properly graded mixture it will not penetrate into the pavement, and unless it can penetrate it will not act.

Q. And you cannot tell whether it is a properly graded mixture unless you have a chemical analysis?

A. That is the only way you can tell, if the mixture has been laid down.

Q. Do you know why the making of mortar on an asphalt pavement is prohibited?

A. Because lime will burn it, just as fire will. If a fire were built on an asphalt pavement it would burn the mixture. If lime were allowed to stand on the pavement it would act on the asphalt.

Q. Do you know whether the Barber Company have furnished any pavements under contract with the District of Columbia within the last two years?

A. Yes, sir; they have.

Q. When was the last contract made?

A. I could not tell when the last contract was made. I can tell about when the last contract was finished. It was last December.

235 Q. But that had been going on for some time.

A. The contract had been made the previous fall.

Q. Well, that was two years nearly, was it not?

A. No.

Q. Do you know why the Barber Company did not receive any further contracts?

A. Yes; because they had not been able to bid low enough to get the work.

Q. Do you not know that Trinidad asphalt had been rejected by the authorities of the District?

A. No, sir.

Q. You do not know that?

A. No, sir.

## Redirect Examination.

By Mr. WORTHINGTON:

Q. Mr. Lobert, in your experience are the evil effects of illuminating gas on asphalt pavements, that you described, confined to any particular mixture, or does it affect generally any asphalt pavement?

A. It would affect any asphalt pavement; because the asphalt is affected by any light oil or a gas. It would affect any asphalt, and would soften any asphalt.

Q. Can you tell me whether or not, in all the pavements that the Barber Company has laid in this country, they have used Trinidad asphalt?

A. No, sir; they have used a great deal of Bermudez asphalt.

236 Q. Can you tell me whether they have used Trinidad asphalt in large quantities all over the country?

A. They have used large quantities of Trinidad Lake asphalt.

Q. Have the appearances which you have described, and which you have attributed to illuminating gas, manifested themselves in these pavements anywhere except where the odor of illuminating gas was present?

A. No, sir.

Q. In what proportion, in square yards, of all the pavements laid by the Barber Company under your knowledge or supervision, has this illuminating gas appearance been indicated, and the pavements gone to pieces from that cause?

Mr. THOMAS: I object to that as it is manifestly impossible for this gentleman to make any accurate answer to a question of that kind.

A. The proportion of the aggregate is very small.

By Mr. WORTHINGTON:

Q. Approximate it, as nearly as you can. Is it one yard in a thousand, or one yard in a million, or couldn't you say?

Mr. THOMAS: I object to a guess.

A. Of the whole, probably it would not be 10 yards in 100,000.

Mr. THOMAS: I move to strike out the answer as mere probability, and not testimony.

237 Recross Examination.

By Mr. THOMAS:

Q. Do you say that illuminating gas acts on all kinds of asphalt precisely the same?



A. Yes, sir.

it by any study of the subject, or by any chemical analysis of  
Q. How did you acquire that knowledge? Did you acquire the asphalts?

A. No, sir.

WILLIAM H. LOBER,  
*By the Examiner by Consent.*

Subscribed and sworn to before me this — day —, A. D. 1904.

\_\_\_\_\_,  
*Examiner in Chancery.*

238 EUGENE GEORGE SCHWENDEMAN, a witness of lawful age, called by and on behalf of the complainant, having been first duly sworn, is examined,

By Mr. WORTHINGTON:

Q. What is your age, Mr. Schwendeman?

A. 41 years.

Q. And your residence?

A. Philadelphia, Pa.

Q. And your present occupation?

A. Superintendent of the Barber Asphalt Paving Company at Philadelphia, Camden, and Chester.

Q. How long have you been connected with the asphalt pavement business?

A. Approximately, about 24 or 25 years.

Q. State in a general way the positions you have held and the duties which you have performed?

A. First as time keeper; then as plant foreman; then street foreman, and then superintendent.

Q. How long have you been superintendent?

A. About eight years.

Q. And before that you say you were street foreman?

A. Street foreman; yes, sir.

Q. How long were you street foreman?

A. About seventeen years. That is, about 16 years. One year I was in the plant.

Q. While you were street foreman, what, in a general way, were your duties?

A. Running the mixing and laying of the concrete,  
239 laying the top, and grading.

Q. Did you have to do with superintending the laying of the pavements, the mixing at the yards, or what?

A. While I had charge of the plant I had charge of the mixing, but when I was on the street I had nothing to do with it.

Q. As superintendent, what if anything have you to do with seeing that the pavements are kept in repair?

A. I have absolutely everything to do with it. I have absolute control of all of it. It goes down according to my instructions. Everything is laid according to my instructions.

Q. How about repairs to pavements after they are laid, during the guaranteed term?

A. It is the same thing. I have those under my supervision.

Q. Does this five-year guaranteed term that we have here apply to any other pavements laid by the Barber Company?

A. Yes, sir.

Q. Does it obtain in Philadelphia?

A. Yes, sir.

Q. As superintendent, what have you had to do with keeping pavements in repair during the five-year term?

A. Our pavements in Philadelphia have had very little done to them, on the guaranteed streets.

Mr. THOMAS: I move to strike out the answer as immaterial and not responsive to the question.

By Mr. WORTHINGTON:

240 Q. The question is, What you have to do with it, where repairs are to be made.

A. I see that the repairs are made.

Q. During your long experience with the business, what opportunities have you had to observe the causes of asphalt pavements going to pieces, or getting out of order?

A. I have had opportunities to see everything that is possible to be seen.

Q. Have you had anything to do with putting them in order when they get out of order?

A. Yes, sir.

Q. What have you had to do?

A. I instruct the men how to put them in order.

Q. Do you personally inspect the places.

A. Yes, sir.

Q. In this way have you had any experience in learning the different causes which affect asphalt pavements unfavorably?

A. Yes, sir.

Q. What has been the result of your experience and observation in that way, as to the effect of illuminating gas upon asphalt pavements?

Mr. THOMAS: I object, on the ground that the witness is not competent as an expert to testify on this subject.

A. It destroys asphalt pavement.

By Mr. WORTHINGTON:

Q. In what way?

241 A. It softens the pavement so that it keeps the pavement moving, until finally it shatters in small pieces and breaks, so that the pavement finally disintegrates.

Q. How do you know this?

A. By experience.

Q. In how many instances have you observed this action of illuminating gas on asphalt pavements?

A. In quite a number.

Q. About how many?

A. I should say 50 to 75.

Q. All cases in which you have personally observed the appearance you have spoken of?

A. Yes, sir.

Mr. THOMAS: I object to all this, because the elements which would throw any light upon whether the same situation existed at the places observed by the witness as at the place under controversy, in this case, are not shown by any evidence.

By Mr. WORTHINGTON:

Q. What is the result of your experience and observation as to whether or not the effects of illuminating gas upon asphalt pavements depends upon the particular mixture or combination of the parts of the asphalt pavement, or applies to asphalt pavements generally?

Mr. THOMAS: Objected to on the ground that the witness has neither qualified himself as a chemist nor as an engineer, but has had merely a practical experience in the repairs of pavements; and therefore, according to his own showing he is not competent to testify.

242 A. Gas will act the same on all asphalt pavements. The mixture has nothing to do with what the gas will do to it, or the action of the gas on it.

Mr. THOMAS: Objected to, because the testimony does not show what kind of asphaltum pavements the witness ever laid or repaired.

By Mr. WORTHINGTON:

Q. Do you mean by asphalt pavements, all pavements of every character?

A. All asphalt pavements that I have ever had to do with.

Mr. THOMAS: I object to the question as leading and suggestive.

By Mr. WORTHINGTON:

Q. Since Mr. Thomas wants details, I wish you would give me some particular instance that you can recall of the effects of illuminating gas on asphalt pavements, mentioning the place where you observed it.

A. In Chicago. The first instance was in Chicago, where I had a chance to run across illuminating gas, on Dearborn Street.

Q. Do you know how that pavement was laid?

A. No, sir; it was laid before I went there.

Q. Did you see the pavement after it was down, and when it was opened?

A. Yes, sir; I made repeated repairs on it.

Q. Describe that pavement in Chicago.

Mr. THOMAS: Objected to as immaterial.

243 A. The pavement in Chicago had a six inch concrete base, a binder coat from a half to one inch on that, and two inches top surface.

Mr. THOMAS: Objected to on the ground that the witness has not given elements sufficient to show whether the base was of natural cement, Portland cement, or whether it was porous or not porous; that he has not stated sufficient to show what the character of the foundation of the pavement was; and I also object to it on the ground that a comparison between the Dearborn street pavement and the M street pavement in this case, is wholly out of place and immaterial.

By Mr. WORTHINGTON:

Q. What kind of cement was used in the foundation on the Dearborn street pavement?

A. Natural cement.

Q. State what you observed, in that case, as to the effect of illuminating gas, and how you came to the conclusion that illuminating gas did affect that pavement injuriously.

A. The pavement was entirely cut up, as I have before said. It made the pavement soft and pliable, so that at times when all the travel was going one way it would shove the pavement, and when it was going the other way it would shove it back, and finally the pavement would be rolled up and made thin in places, and then it would disintegrate and slough away. In making repairs there a very peculiar thing happened at one

time. While a man was picking into the pavement his pick struck a flinty stone and made a spark, and ignited  
244 there immediately and quite a flame shot up from the pavement, showing that it was illuminating gas. It couldn't have been anything else but illuminating gas there.

Q. What did you observe as to the absence or the presence of the odor of illuminating gas there?

A. The odor was very strong. At some places where there was a hole in the pavement and it would come through the base, you could not stand over it.

Q. What unusual appearance, if any, did the concrete base itself present?

A. It showed that the gas had gone through the pavement. Where the gas goes through drops of moisture fall back on the cement, and it leaves a kind of gummy substance of a bluish cast between the two layers. It leaves the concrete very slippery and allows the top to slide.

Q. In the other instance you speak of where you observed the evil effects of illuminating gas on asphalt pavement, what were the indications that the effect you noticed was brought about by illuminating gas?

Mr. THOMAS: The same objection.

A. The effect on the pavement was the same. It was absolutely soft and pliable.

By Mr. WORTHINGTON:

Q. What about the smell?

A. The smell was the same. The odor of gas was very  
245 strong.

Q. What as to the bluish cast on the top of the concrete base?

A. There was the same identical thing. I could cite another street in Chicago, where we had considerable trouble—Calumet Street. On that street there was a bituminous base. In other words, there was a Macadam roadway and an asphalt pavement was simply put over the Macadam roadway. There were shade trees all along the line of the street, and they were killed by the illuminating gas, and the pavement went all to pieces. Finally the gas people went in and made repairs on the pipe and relaid it, and paid us for repairing some of the pavement.

Mr. THOMAS: I move to strike out the answer as utterly immaterial, and as not a proper comparison between any of the pavements suggested and the pavement in this case.

By Mr. WORTHINGTON:

Q. How did the pavement and the trees act then, after the gas company had repaired the place?

Mr. THOMAS: The same objection.

A. I couldn't say as to that, because very shortly after they made the repairs. I was sent out of Chicago. I don't know what their conditions were after that.

Q. Was anything done on Dearborn street in the way of correcting or stopping leaks?

A. Yes, sir. The main was overhauled, and practically a new main was substituted for the old one.

Q. Do you know, as a matter of personal knowledge, what was the result of that?

A. After that we had no trouble with the pavement. I can cite places in Philadelphia at the present time where  
246 we have discovered leaks in the gas main, and where the pavement shows indications of gas. We notify the gas people, and immediately they come and repair the main, and after that we have no trouble with the pavement.

Mr. THOMAS: I move to strike out all that as having nothing to do with the case.

By Mr. WORTHINGTON:

Q. How often has that happened in Philadelphia, to your personal knowledge?

A. I should say, in maybe one or two instances a month we have those things happen.

Q. For how many years?

A. Ever since I have been there—eight years.

Q. In those cases in Philadelphia where the gas company takes action, you say the trouble is then at an end?

A. It is at an end after the gas main has been fixed, after the leak has been discovered.

Mr. THOMAS: I move to strike out on the ground that it is not shown that the conditions which exist here in this District are the same as those in Philadelphia and Chicago.

By Mr. WORTHINGTON:

Q. What are the appearances when you call the gas company's attention to particular places in the pavement and ask them to take action?

A. It shows that the pavement on the top is very soft on each side of the opening, wherever the gas has penetrated to the pavement—wherever it has found an outlet so that it  
247 can penetrate to the pavement. It is perfectly intact everywhere, but just where the gas comes up the pavement is shattered in little places, and it leaves the pavement in a very soft, porous condition, while each side of the pavement will be perfectly intact.

Q. Each side of the pavement?

A. That is, on each side. There will be the place where the gas came up through the pavement and if it is not fixed at once it keeps on extending.

Q. Have you ever had any experience in laying asphalt pavement in Washington?

A. No, sir.

Q. Did you at any time make an examination of the asphalt pavement on M street in Washington, between Thirty-first and Thirty-sixth streets?

A. I did.

Q. When?

A. About May of 1902.

Q. Alone, or in company with somebody else?

A. In company with Mr. Lober and Mr. Richards.

Q. Were you acquainted with the streets in Washington?

A. No, sir.

Q. Do you know of your own knowledge what the street was?

A. Only that it was an asphalt pavement.

Q. Do you know what street it was?

A. It was M street.

Q. Do you know where the car barn is up near Aqueduct bridge?

248 A. Yes, sir.

Q. Where, with reference to that, was it that you made your examination?

A. We started from there and came towards town.

Q. How far did you come?

A. Four or five blocks.

Q. Tell us what you observed on that examination.

A. We found quite a number of places where the pavement showed indications of disintegration. It was broken up and shattered, and upon examining it we found the odor of gas was very strong. It showed all the indications I have before mentioned, that gas was cutting the pavement.

Q. I wish you would repeat just what you observed there.

A. We found the pavement to be soft and pliable, and the odor of gas was very strong.

Q. The odor of what gas?

A. The odor of illuminating gas. In the binder between the asphalt surface and the concrete, some of the stone was perfectly clean, showing that the gas had cut all the asphalt cement off of the stone.

Mr. THOMAS: I object to the conclusion of the witness, as incompetent.

By Mr. WORTHINGTON:

Q. How did you make the examination?

A. We cut through the pavement with a hatchet.

Q. How far did you cut down?

A. Down to the concrete.

Q. About how many openings of that kind did you make?

249 A. Possibly a dozen.

Q. Can you specify on what portions of M street, between Thirty-first and Thirty-sixth streets, you found these places where you made examinations?

A. It was scattered in different places.

Q. On one side of the street or on both?

A. It mostly seemed to be on one side.

Q. Which side was that?

A. I think it was the north side of the street.

Q. The side towards the river, or away from the river?

A. Away from the river.

Q. Did you or not make an examination of all the places where the pavement was defective?

A. We examined every place that we discovered at that time that was defective.

Q. What do you say as to every one of the places?

A. Every one showed every appearance of illuminating gas.

Q. The indications you have described?

A. Yes, sir.

Q. Are you familiar from practical experience with other causes that affect asphalt pavements unfavorably after they are laid?

A. Some of them.

Q. As well as with the defects which appear from improper material or workmanship?

A. Yes, sir.

250 Q. What do you say as the result of your experience and observation, as to what was the cause of the condition of these bad places on that M street pavement when you examined it?

Mr. THOMAS: Objected to as incompetent.

A. It was caused by illuminating gas.

By Mr. WORTHINGTON:

Q. What would you say as to whether the conditions you observed there could have been from any other cause?

A. I don't think there was any other cause whatever.



Mr. THOMAS: Objected to on the ground that the witness is incompetent to testify.

By Mr. WORTHINGTON:

Q. For the Barber Company have you laid or participated in the laying of pavements in which other asphalts than Trinidad asphalt have been used?

A. Yes, sir.

Q. What other kinds?

A. Bermudez asphalt.

Q. Any other.

A. Nothing but Trinidad and Bermudez.

Q. Have pavements been laid under your observation, by others, of other asphalts than Trinidad and Bermudez?

A. No, sir.

Q. Are the effects which you have observed resulting from the presence of illuminating gas, confined to any particular kind of asphalt?

A. No, sir; they are identically the same.

Mr. THOMAS: Objected to on the ground that the witness has testified that the only experience he has had has been  
251 with Trinidad and Bermudez asphalts.

Cross-examination.

By Mr. THOMAS:

Q. Did you cut the pavement at the places where you discovered the existence of illuminating gas?

A. I did.

Q. And those were the places you cut?

A. The places I cut were the ones I cut.

Q. Were there any other places there that showed the presence of illuminating gas that you did not cut?

A. No, sir.

Q. That is what I meant. Where did you graduate as an expert in gas?

A. I do not profess to be an expert in gas.

Q. Where did you receive your chemical education?

A. I have no chemical education.

Q. Where did you receive your education in reference to the art of constructing streets and roads?

A. From practical experience in working for the Barber Asphalt paving company.

Q. You commenced as time keeper?

A. Yes, sir.

Q. How many years did you work as time keeper?

A. One.

Q. What was your next employment?

A. I was in charge of the yard for one year, or rather for one season. Then from that I went out on the street and  
252 have been there since.

Q. Superintending the application of the mixture?

A. Yes, sir; first as foreman and then as superintendent.

Q. Foreman in reference to laying of the base, the binder and the surface?

A. Whatever branch of the work I may have been detailed on.

Q. How long have you been superintendent?

A. Eight years.

Q. That is what you mean to say is your experience to reference to the effect of illuminating gas on asphalt?

A. Yes, sir.

Q. During the time that you have been superintending the work on the streets for the Barber Company have they had any litigation in reference to the effect of illuminating gas?

A. While I have been superintendent I have been in Philadelphia. Immediately we notify the United Gas Improvement Company that they have a leak in a main that is disintegrating the pavement, they immediately send somebody there to fix it.

Mr. THOMAS: I move to strike out the answer as not responsive to the question.

By Mr. THOMAS:

Q. My question is whether the Barber Company has had any litigation respecting the effect of illuminating gas, either with gas companies or with municipalities.

A. In Philadelphia?

Q. Anywhere, while you have been with them.

253 Mr. WORTHINGTON: Anywhere, to your personal knowledge.

A. None that I know of.

EUGENE GEORGE SCHWENDEMAN,

*By the Examiner by Consent.*

Subscribed and sworn to before me this — day of —, A. D., 1904.

\_\_\_\_\_,  
*Examiner in Chancery.*

The further taking of these depositions was thereupon adjourned until Wednesday, July 13th, 1904, at 10 o'clock a. m.

254 WASHINGTON, D. C., *July 13th*, 1904, 10 o'clock a. m.

Met pursuant to adjournment.

Present on behalf of the complainant, Mr. WORTHINGTON.

Present on behalf of the defendant, Mr. THOMAS.

Whereupon HORACE M. WOODWARD, a witness of lawful age, called by and on behalf of the complainant, having been first duly sworn, is examined,

By Mr. WORTHINGTON:

Q. Please state your full name?

A. Horace M. Woodward.

Q. If you have no objection, please state your age.

A. I have not the slightest objection. I was born on the 11th of October, 1859. I will be 45 years old the 11th of next October.

Q. Where do you live?

A. At Brookland.

Q. In the District?

A. Yes, sir. 1234 Lamson street.

Q. How are you employed at present?

A. I am Permit Clerk in the office of the Commissioners of the District of Columbia.

Q. How long have you held that position?

A. Since October 14th, I think 1889. I am not positive about that date. It was in October.

Q. Have you produced here in accordance with subpoena served upon you yesterday, the original record  
255 & 256 of applications for permits of the Georgetown Gas-Light Company for cuts on M street, in the city between Thirty-first and Thirty-sixth streets, made at any time since January first, 1897?

A. I have produced all the applications that I could find for that work; yes, sir. I did not bring the stub-books over with me because I thought I had better ask about that before bringing a great pile of books over here. They really do not show anything more.

The witness here produces twenty-eight applications for permits by the Georgetown Gas-Light Company within the period mentioned in the question, and by consent of counsel copies of the same are offered in evidence by counsel for the complainant, in place of the originals; and they are filed herewith, marked respectively Exhibits Woodward, Nos. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, and 28; subject, however, to any objection that might be made to the evidence, aside from the fact that copies are used instead of originals.

Mr. THOMAS: The only objection I have is that the evidence is immaterial.

By Mr. WORTHINGTON:

Q. State whether or not permits were issued in accordance with these applications?

A. Yes, sir; they were.

Q. You have no personal knowledge, I presume, as to whether the work called for was actually done or not?

A. No, sir; I have not.

257

HORACE M. WOODWARD,

*By the Examiner by Consent.*

Subscribed and sworn to before me this — day —, A. D., 1904.

\_\_\_\_\_,  
*Examiner in Chancery.*

258 ROBERT L. MIDDLETON, a witness of lawful age, called by and on behalf of the complainant, having been first duly sworn, is examined.

By Mr. WORTHINGTON:

Q. What is your full name?

A. Robert L. Middleton.

Q. And your age?

A. Forty-five years.

Q. What is your residence?

A. 1411 Thirtieth street, northwest.

Q. How are you employed?

A. As General Manager and Superintendent of the George-Gas-Light Company?

Q. How long have you held that position?

A. I have held the position of Superintendent of the Georgetown Gas-Light Company for eleven years, and for one year I have been General Manager and Superintendent.

Q. Will you look at these applications for permits which have just been produced by Mr. Woodward and state whether or not the signatures to the applications are by yourself or somebody else authorized to make them for the Georgetown Gas-Light Company?

A. Yes, sir; they seem to be correct.

Q. As Superintendent have you anything to do with the work of making cuts in the streets, in accordance with such applications as these?

A. Yes, sir.

Q. You have general charge of that matter, I suppose?

A. Yes, sir.

259 Q. Can you tell us in a general way whether the work called for by these applications was done?

A. Yes, sir.

Q. These applications refer to mains on M street between Thirty-first and Thirty-sixth streets. Can you tell me where that main is, or whether there are more than one.

A. The main on M street between Thirty-first and Thirty-sixth streets is in the sidewalk on the south side. We have a small three-inch main on the south side also, about eight or ten feet deep in the ground. That is one of the original mains that was there. On the north side it is about three feet south of the north curb line.

Q. Does each of those mains extend the whole length of M street from Thirty-first to Thirty-sixth streets?

A. Yes, sir; each of them extends there; but the main on the south side extends from Thirty-first to Thirty-second streets in the sidewalk, and then from Thirty-second to Thirty-sixth streets there is a three-inch main that runs from that point up to the aqueduct bridge, or Thirty-sixth street, about two feet north of the south curb line.

Q. Under the carriage way?

A. Yes, sir; at an average depth of about five feet, it seems to me, up to about Thirty-third street; then it comes up to about three feet from there on.

Q. What is the size of the main on the south side of M street between Thirty-first and Thirty-second streets, where it is under the sidewalk?

A. It is a six-inch main.

260 Q. And from Thirty-second to Thirty-sixth streets, where it is under the carriage way, it is only a three-inch main?

A. Three-inch on the south side; yes, sir; and four-inch on the north side.

Q. Is the main on the north side wholly a four-inch main?

A. No, sir. It is six-inch up to the middle of the square between Thirty-second and Potomac streets, and it is then decreased to four-inch, and runs from that up to the Union Station.

Q. How long have the several mains been down?

A. The three-inch main on the south side, I have no record of, as to the length of time it has been down—since 1857 or 1858, or something like that. As to the six-inch main on the south side, I could tell by that application better than from memory. (After examining applications). Judging from these applications it must have been prior to 1897, but I cannot

recall it, you know, from memory. I could look it up after I get back to the office.

Q. How long have the mains which you have described on the north side of M street been down?

A. They were down prior to my going to the gas works. The six-inch main and the four-inch main up to about Potomac street, were there, I should judge, fifteen years; but I do not know. I can look that up when I get back to the office, also.

Q. That is near enough, Mr. Middleton.

A. The four-inch main running from there up to the Union Station was put in also prior to 1897. The four-inch  
261 main on the north side was run in there after the extension or about the time of the extension of the Capital Traction Company up to the bridge.

By Mr. THOMAS:

Q. What year was that?

A. I cannot recall.

By Mr. WORTHINGTON:

Q. This application for permit, dated December 16th, 1898, is for repairing leak in gas main on M between 31st and 32nd streets. Have you now any personal recollection of that particular trouble?

A. No, sir; I cannot say that I have. Will you let me see the application? (After examining application). No, sir, I have not.

Q. In this application which is dated January 13th, 1899, it asks for permission to make an excavation for the purpose of repairing leak in gas main on M between 32nd and Potomac streets. Have you any recollection of that trouble?

A. Yes, sir; a slight recollection. That was in front of Wagner's jewelry store.

Q. Which main was it that was in trouble; the one on the north side or the one on the south side?

A. The one on the north side—the six-inch main.

Q. In application dated July 26th, 1901, you ask for permission to make an excavation for the purpose of repairing leak in main on M street between 32nd and Potomac. Have you any personal recollection of that trouble?

A. It was in the service pipe, I think, running into  
262 the Capital Traction. We would very often ask for permission to repair leaks in gas mains when we really wanted to repair services to some extent; and the idea was to strip the main to look at these services, and also to look at the leaks. If we asked for permission just to repair service we

would only have an opportunity as of going into the one place right opposite to the designated number.

Q. This application dated March 4th, 1902, is for the purpose of repairing leak in main on M street between Potomac and 32nd street. Have you any recollection as to that?

A. No, sir; I cannot say that I have now.

Q. This application dated December 16th, 1902, was for the purpose of repairing leak in main on M street between 32nd and Potomac streets. Have you any recollection of that difficulty?

A. No, sir, I cannot say just now.

Q. Application dated January 15th, 1903, was for the purpose of repairing leak in service, 3145 M street. Have you any recollection of that?

A. 3145 M street?

Q. Yes.

A. No, sir; I cannot say just now.

Q. Application dated January 14th, 1904, is for the purpose of repairing leak in gas main on M street between 31st and 32nd streets. Have you any recollection of that?

A. Yes, sir.

Q. What was that?

263 A. We stripped the main off there for quite a distance. There was a leak in the sidewalk, and it came out from the curbstone or the bricks, you know. We found that it was an old service leading into a place that was owned at that time by a party named Tribby, and which has since been rebuilt. The service had eaten out. There were no indications of leaks in the joints of the main at that time.

Q. The service pipe had eaten out?

A. Yes, sir; the service pipe. We had a time digging for it in the dead of winter.

Q. Was this particular trouble on the north side or the south side of the street?

A. The north side.

Q. How does it come to your notice that there are leaks when you ask for these permits?

A. Sometimes, for instance, a man will smell it in his cellar. We will go up and examine and find out that it comes right in from the service pipe—it follows it right into the cellar. Then we go out and dig the service up, and if we find that is all correct, we know it is in the main and we go to the main and strip it off to see what joint it is. We make an excavation, and then we have a man to smell or to try a light on the spot, and if we find the gas is not coming that way we try it on another, and trace it on down.

Q. You keep on until you find it?

A. Oh, yes.

Q. Is *the* fact that there are leaks brought to your notice in any other way than by the complaints of householders  
264 of the smell in the house?

A. Yes.

Q. In what way?

A. We had a complaint from the Potomac Telephone Company that in one of their conduits there was the smell of gas, on the corner of 32nd and M streets, on the south side. We stripped the main in there.

Mr. THOMAS: Are you giving the dates?

The WITNESS: No, sir; I cannot give the dates. You have not the application for that here, have you, Mr. Woodward?

Mr. WOODWARD: They run as I found them indexed, up to this morning.

By Mr. WORTHINGTON:

Q. What year was that?

A. This spring—the early spring.

Q. It should be there then?

A. It is not here.

Mr. THOMAS: I object to all testimony on dates, referring to this matter, after the expiration of the five-year period of guarantee.

Mr. WORTHINGTON: Counsel for complainant submits that the fact that there were leaks discovered after that, which were not fixed before, is more important than if they were before.

Mr. THOMAS: It does not appear that they were there before the expiration of the period. That is an assumption.

By Mr. WORTHINGTON:

265 Q. About when was it that this telephone company complaint was made?

A. About the first part of the year. Along about March, I judge.

Q. Did you go there to confirm their complaint, and see whether it was true or not?

A. Yes, sir; I had to. We were very much annoyed with it. We did not like to have complaints from them. They had the place open for several days, and we examined within twenty-five or thirty feet all around there. Then we went further up M street and exposed the main, but we could not find any trace of a gas leak. So my opinion was that it was sewer gas more than anything else, an accumulation of foul gas in there. We never could discover any gas from our main. We would send



men down in the manhole, but we never could discover a leak of gas there.

Q. Who was it that made this complaint on behalf of the telephone company?

Mr. THOMAS: Objected to as immaterial, and as simply searching for evidence.

A. I cannot recall the man's name now. He is the street man for the Potomac Company.

Q. The Chesapeake & Potomac Telephone Company?

A. Yes, sir.

Q. The man who superintends their outside work?

A. Yes; he lives on Olive Avenue, but I cannot recall his name—out in Georgetown.

Cross-examination.

266 By Mr. THOMAS:

Q. Were there applications made for permits in addition to these improvements on M street, prior to January 1st, 1897?

A. Were applications made for permits to repair leaks prior to 1897?

Q. Yes. Prior to January first, 1897?

A. Yes, sir. As I stated before we would make applications for permits to repair leaks to cover service repairs to some extent.

Q. Those applications, I suppose, ought to be on file in the District records?

A. Yes, sir; Mr. Woodward has them.

Q. You may state, please, whether it is a common occurrence to have leaks in gas mains in streets?

A. Well, no sir; not generally. Of course we aim, and all good managers will try to stop the leakage of the stuff they are selling as much as they can. We have a "nosing committee" as a general thing going around to discover anything of that kind. Just as soon as anyone discovers a smell of gas at one point or another, he notifies us and we immediately investigate, and of course begin to dig if necessary. But we do not do that until it is absolutely necessary. Our course in locating leaks to some extent is on this line. We use a small steel rod, and if we have a complaint from anyone, we drive this rod right down as near as we can to our main, and then have a man smell there to see if he discovers anything.

267 By Mr. WORTHINGTON:

Q. Does he smell the rod after taking it out?

A. No; at the hole.

Q. He draws the rod out and smells at the hole?

A. Yes, sir; that is the way we search for leaks.

By Mr. THOMAS:

Q. What I want to know, Mr. Middleton, is whether or not gas companies do not figure on a certain percentage of leakage of gas from their mains?

A. Well, we do figure on some from the mains, and condensation. Our percentage of leakage may run all the way from six to ten per cent. It is always figured on that line.

Q. Do you know how long it has been known that there was a percentage of gas that would leak from mains, no matter how well laid?

Mr. WORTHINGTON: I object, as wholly immaterial, and also because the question is not definite as to whose knowledge is in question.

A. Well, there is always a slight leakage of gas in mains as a general rule, caused by the expansion and contraction of the joints.

By Mr. THOMAS:

Q. How long has that been known to be a fact?

Mr. WORTHINGTON: Objection repeated.

A. Ever since the discovery of gas as an illuminant, or of pipes to convey it from one point to another.

By Mr. THOMAS:

268 Have you any record of the repairs in service pipes, or main on M street, prior to January first, 1897?

A. Have I any record of them?

Q. Yes, sir.

A. I doubt very seriously whether I could furnish it. I have no official record.

Q. Were you around the place when M street was dug up for the purpose of laying the asphalt pavement between Thirty-first and Thirty-sixth streets?

Mr. WORTHINGTON: I object to this line of inquiry on the ground that it does not refer to anything gone into on the examination in chief, and notify counsel that if he proceeds on this line I shall assume that as to this matter he makes the witness his own.

Mr. THOMAS: Under those circumstances I withdraw the question.

[7:10]

By Mr. THOMAS:

Q. I refer now to application No. 391, dated June 25th, 1897, which is an application for permission to make the necessary excavation for the purpose of connecting premises Nos. 3161 and 3263 M street, northwest, with main. Was there any leak in that main at that place, which made this application necessary, or was this application solely for the purpose of connecting the premises mentioned?

A. Solely to connect the premises mentioned.

Mr. WORTHINGTON: I may state here, to save trouble, that as to most of these applications, they are offered as evidence simply for the purpose of showing that the gas company had a main at the points referred to in the applications.

By Mr. THOMAS:

Q. Referring to application No. 195, Book 48, dated July 1st, 1898, to make the necessary excavation for the purpose of repairing connection in main, No. 3240 M street, do you recall anything about that?

A. No, sir; I cannot say. It is only a repair of service or putting in a new service, when the number is given.

Mr. WORTHINGTON: Repairing connection in main, it says, No. 3240 M street.

The WITNESS: That was just a mistake on the part of the clerk in making up that application. I will tell you gentlemen, you know it is a difficult matter for me to sit here and enumerate what repairs we did at any one cut. We are doing this all the time, and Mr. Woodward will verify my statement. I have applications in my pocket now for him. We are doing them all the time—renewing services and repairing leaks.

By Mr. THOMAS:

Q. You are going into too much detail, Mr. Middleton.

A. I want to be understood. I do not want you to think I know nothing.

Q. I just want you to answer my questions. I want to know whether you recall what the repair was in the connection of that main?

A. No, sir; I do not.

Q. It might have been a repair in the service, or it might have been a repair at a connection?

270 A. Yes, sir.

Q. Referring to application No. 403, Book 48, dated September 17th, 1898, for permission to make the necessary exca-

vation for the purpose of repairing service at No. 3534 M street, do you recall what that repair was?

A. I do not.

Q. Referring to application No. 146, Book 49, dated December 16th, 1898, to make the necessary excavation for the purpose of repairing leak in gas main on M between 31st and 32nd streets, do you recall that?

A. Yes, sir; I think I made the statement a while ago that it was a leak in the six-inch gas main.

Q. Do you remember at what place?

A. As near as I can guess, that was right in front of Wagner's jewelry store. I cannot recall the number.

Q. How long had that leak been in existence?

Mr. WORTHINGTON: If you know.

Mr. THOMAS: That is what I am asking.

A. Only a very little while. Mr. Wagner reported it. There was a leak in the water main there, and it undermined our main so that it settled down and sprung a joint.

By Mr. THOMAS:

Q. How soon after after the leak was the repair made?

A. A couple or three days. We cannot let those run.

Q. Referring to application No. 163, Book 49, dated December 27th, 1898, to make excavation for the purpose of renewing service in front of premises No. 3103 M street, can you explain to me what was meant by that, and what was done there?

271 A. We renewed a service there in a tea store; it was not large enough. The three-quarter inch service was not large enough and we put a larger one in there.

Q. There was no leak there?

A. No, sir.

Q. Referring to application No. 199, Book 49, dated January 18th, 1899, to make excavation for the purpose of repairing leak in gas main on M between 32nd and Potomac streets, can you tell me where that was?

A. It was near the corner of Potomac street, in the sidewalk.

Q. How long had this leak existed before it was repaired?

A. I want to correct my former statement. It just occurs to me that it was at the end of the six-inch main on M street.

Q. What former statement?

A. On the north side of M street, at the end of the six-inch main at Wagner's place, where I was telling you, there is a four-inch main that comes in the sidewalk and runs in the sidewalk down to Potomac street, and then it goes out in the street. That is where the leak was, right in front of Mr. Hayes' tea store.

Q. How soon was this leak repaired after it occurred?

A. The next day. It was leaking into his cellar, and he was complaining.

Q. What was the cause of that leak?

A. The service was eaten right out; and then he had a sewer under there that carried the main down and broke the  
272 main in half and pulled the service right out, you see, where the pipe was tapped into the main. The sewer caved in and broke the main right in half, right in front of his door.

Q. In the sidewalk?

A. Yes, sir.

Q. Was that caving in perceptible?

A. Oh, no; it went in after that heavy rain, one night. It had been sinking down.

Q. You say there was a break in the service there?

A. A break in the gas main. It broke right in half.

Q. What did that do to the service?

A. It pulled the service right out, and the gas went into his cellar, and they had to keep the place open day and night. We went right away and dug for it.

Q. How many days was his place open before it was fixed?

A. About a day.

Q. Referring to application No. 236, Book 49, dated February 18th, 1899, for permission to make the necessary excavation for the purpose of repairing service in No. 3153 M street, can you tell me what that was?

A. I cannot say that I can.

Q. Referring to application No. 254, Book 53, dated May 3rd, 1901, to make the necessary excavation for the purpose of repairing service No. 3290 M street, can you tell me what that was?

273 A. I cannot locate the place. No, sir; I cannot.

It is agreed that the cross-examination of this witness shall be left open with reference to specific matters referred to in the different applications.

#### Redirect Examination.

By Mr. WORTHINGTON:

Q. Is this general loss from leakage that you speak of, running from six to ten per cent, all such as is noticeable to the sense of smell so that you can locate it?

A. Oh, no.

Q. Is it imperceptible, generally?

A. It is imperceptible, generally.

Q. It is only when there is a considerable leak, and where the

gas is present and escapes in such quantity that it can be detected by smell, that your attention is ordinarily called to it?

A. Oh, we are constantly excavating, and by disturbing the ground we can discover whether there is any leak in our mains or not.

Q. Do you mean that if there is a leak in a main the gas will permeate the ground above it so that you can smell it?

A. No, sir, not to a very great extent, because our mains are put some distance down, and unless there is a very great leak, a large leak, it does not permeate the ground. It finds an opening and comes right out at some one point.

274 Q. If it is a large leak it will permeate the ground and escape from the surface somewhere?

A. It will come right out through the earth; and generally we find it in the sidewalk.

Q. Suppose it should come out somewhere in the carriage way. How do you find that usually?

A. In the cracks in the concrete, for instance. The expansion and contraction of that will pull it away, maybe, from the gutter line, and it will come up right through there. You see they don't fit in close there, generally.

ROBERT L. MIDDLETON,

*By the Examiner by Consent.*

Subscribed and sworn to before me this — day of —, A. D., 1904.

\_\_\_\_\_,  
*Examiner in Chancery.*

275 R. M. RICHARDS, who had been previously sworn and examined on behalf of the complainant, resumed the stand.

By Mr. WORTHINGTON:

Q. Mr. Richards, have you, in pursuance of the suggestion of counsel for the defendant in this case, put into tabulated form the information contained in your books as to the repairs made to certain asphalt pavements concerning which you have testified?

A. I have.

The witness here produces and hands to counsel for complainant tabulated statement referred to.

Mr. WORTHINGTON: I offer this tabulated statement in evidence.

Mr. THOMAS: I have no objection to its being filed.

The above mentioned tabulated statement, offered in evidence

by counsel for complainant, is filed herewith, marked Exhibit Richards No. 17.

Counsel for the defendant accordingly withdraw the objection they have heretofore made to the testimony of the witness R. M. Richards, as to those repairs, so far as it goes to the nature of the evidence by which the fact of the repairs is proved.

ROBERT M. RICHARDS,  
*By the Examiner by Consent.*

Subscribed and sworn to before me this — day of —, A. D., 1904.

*Examiner in Chancery.*

276 The further taking of these depositions was thereupon adjourned subject to notice.

277 WASHINGTON, D.C., *December 16th*, 1904—2.30 o'clock p.m.

Met pursuant to agreement at the office of A. S. WORTHINGTON, Columbian Law Building, Washington, D. C.

Present on behalf of the complainant, Mr. WORTHINGTON.

Present on behalf of the defendants, Mr. THOMAS.

Whereupon, cross examination of the witness, ROBERT L. MIDDLETON, is resumed, under stipulation at page 215 of the record.

By Mr. THOMAS:

Q. Mr. Middleton, I will ask you whether, since your last examination, you have been over the permits issued by the District of Columbia, which were offered in evidence in this case?

A. Yes, sir.

Q. I find, on an examination of these permits, a reference to six leaks, including the dates of January 16, 1898, and January 15th, 1903; of two leaks including January 14th, 1904, and March 4th, 1904, being for the six leaks mentioned in Exhibits numbers 5, 8, 15, 18, 23 and 24, respectively. No. 5 refers to a "repair leak in gas main on M street between 31st and 32nd streets;" No. 8 refers to: repair leak in gas main on M street between 32nd and Potomac streets, in front of Wagner's jewelry store; No. 15 refers to: Repair leak in gas main on M street between 32nd and Potomac streets; No. 18 refers to:

Repair leak on M street between Potomac and 32nd  
278 streets; No. 23 refers to: Repair leak on M street between 32nd and Potomac streets; No. 24 refers to: Repair leak in service at 3145 M street.

Will you please state whether these are the only leaks occurring in the main at the places indicated, between December 16th, 1898, and January 15th, 1903, inclusive, if you know?

Mr. WORTHINGTON: I object to the question because, as I understand it, it calls among other things, for the testimony of the witness as to what is contained in these permits, which speak for themselves.

A. To the best of my knowledge and belief they are the only leaks.

By Mr. THOMAS:

Q. I find that four of these leaks in the main, being those occurring respectively January 18th, 1899, July 16th, 1901, March 4th, 1902, and December 16th, 1902, occurred in the main between 32nd and Potomac streets; is that correct?

A. Yes, sir.

Q. I wish you would state what those four leaks were, where they were, and whether they were at the same or at different places in the main?

A. Three of them occurred at the same place, and one at a different place, nearer 32nd street. Three of them occurred nearer Potomac street, in the sidewalk, and the one was close to 32nd street, in the roadway.

279 Q. Can you take these permits and tell me which three refer to the leaks in the same place?

A. Exhibit No. 5, dated December 16th, 1898, was a leak right near Mr. Hayes' tea store, as I stated in my former testimony.

Q. Was that a different place from the other three?

A. No; two others occurred at this same point. Then one occurred in front of Mr. Wagner's jewelry store. The 48-inch water main runs along there, and it sprung a leak. There was a big wash, and Mr. Wagner, who lives opposite there, called my attention to it, and said that while the place was open, I had better go up there and look at the gas main. So while the water men were repairing there I went over to see what amount had been washed out underneath it, and I sent the men up there to re-ram it, and it was necessary for me to get a permit.

Q. When was that?

A. That was in 1898, or 1899. We found that the joint had sprung and was sagging a little; but it was not a leak that would light, so the men took a chisel and caulked the joint up again and filled it in.

Q. How soon after the report of a leak was made, did you caulk it up?

A. I should judge it was a couple of days. We had to wait



until they got out of our way. They finished their work and, I think the next day, before they put the asphalt down, we went in there and did what I have just stated to you. I wanted to save the expense of taking up the asphalt.

280 Q. Where do you say this place was?

A. That was in front of Mr. Wagner's store. I do not know the number.

Q. Is that the same place where the other three leaks occurred?

A. No, sir; they occurred near the corner of Potomac street, in the sidewalk. Our main runs under the sidewalk from midway of this square. It is a 6-inch main, comes into the sidewalk and runs to Potomac street inside the sidewalk. All these three breaks occurred at that point, near the corner of Potomac street, in front of Mr. Hayes' tea store. Right under our main at that corner there is a large sewer. I do not know whether it is unused or not; but it has given way two or three times. You will notice that these permits are all very close together. The first time it gave way it pulled the service out, so that the gas went into Mr. Hayes' cellar. The next break that occurred was something on the same line. We went there to repair a leak in Mr. Hayes' cellar, and we found that the gas was coming into his pipe through this service, so we went out and cut the granolithic sidewalk, and found the main was broken in half. On another occasion the same thing happened by the seeping away of the earth underneath.

Q. How soon after the discovery of these leaks did you repair them?

A. Within two days, at the outside.

Q. To what extent was there a leak there on these three occasions?

281 A. The extent of the leak was not very great, because we could not afford to let it become great, on account of its seeping into his cellar, which might cause an explosion. I doubt very seriously whether there was 5,000 feet of gas wasted. That is only guess work—to say how many feet of gas were wasted.

Q. With reference to the two leaks, or the two alleged leaks in the gas main on M street between 31st and 32nd streets respectively, on January 14th, 1904, and March 4th, 1904, as mentioned in the permits, what were the conditions at that point, if any?

A. We had a report from a gentleman by the name of Waddy—

Mr. WORTHINGTON: I object to any evidence about Mr. Waddy's report.

By Mr. THOMAS:

Q. Just state what you found there?

A. We found a leak drifting into this man's cellar. We went there, dug the main up, and found that the service pipe of another house, two doors above it, had been completely eaten out.

Q. That was at what date?

A. That was in January. We dug again at the same place along early in the spring.

Q. Then what did you find?

A. We dug up there in January and could not find any leak at all, so all I did was to go into this cellar and plaster it up.

282 Along in March we went up there again. The first time it was frozen so hard that we had trouble in digging, and we went up there as soon as we were able to dig easily, and discovered this service into this house was leaking at the joint. That is where the leak was. There was no indication of a leak in the main.

Q. When you referred a while ago to the main leaking in three instances between 32nd street and Potomac street—do you know what caused the leak?

A. I said it was caused by the sinking of that sewer, and the condition of the ground underneath.

Q. Do you know, of your own personal knowledge, whether the sewer caused it?

A. No, I do not.

Q. Do you know how, or why, the ground sunk?

A. I do not.

Q. Referring to the permits for repairs, being Exhibits Nos. 3, 4, 9, 12, 14, 20, 22 and 25, dated July 1st 1898, September 17th, 1898, February 18th, 1899, May 3rd, 1901, July 6th, 1901, March 18th, 1902, August 18th, 1902, and September 28th, 1903, I will ask you to state what those permits were for, and what the condition was at the places indicated in the permits.

A. July 1st, 1898, was to repair connection of gas main in front of 3240 M street, for the purpose of repairing siphon in sidewalk.

Q. What is a siphon?

283 A. A siphon is a depression or pipe which we always place to catch the condensation. This siphon became filled up, so that it was necessary to dig it up.

Q. The siphon filled up with what?

A. With water, from the condensation of the gas.

Q. How does that happen?

A. There is more or less moisture in gas, and when it gets into the mains, it condenses. There is more or less vapor in the

gas, that is condensed by coming into contact with the chilled pipe. Condensation is caused by the gas going out of our works at a temperature of 65 or 70 and condensing when it strikes these cold mains.

Q. I wish you would describe a siphon, and how the pipes are laid to provide for the siphon?

A. A siphon is a pot or vessel always placed at the low point of the main to receive the condensation which accumulates in the main.

Q. Do you lay your mains on a level or not?

A. We do not lay the mains on a level, because of this condensation which I have spoken of. We must necessarily put them on a decline.

Q. And I suppose the siphon is put at the lowest point?

A. At the most convenient place for the siphon.

Q. To catch the condensation?

A. Yes, sir.

Q. In your direct testimony, you spoke about there being 10 per cent. of leakage in gas. What did you mean by that?

284 A. I said—if I did not, what I said was intended to convey that idea—that in works of our size, what we term the leakage of gas is caused by condensation, slow motors, and the excess amount of gas consumed by street lamps other than what we are paid for. For instance, we have in town a great many meters that are not registering their required amount.

Q. You call that "leakage"?

A. Yes, sir.

Q. Then you have condensation?

A. Yes, sir.

Q. And you call that "leakage"?

A. Yes, sir.

Q. And that makes up the ten per cent. referred to?

A. All of these go together.

Q. I do not mean to put words in your mouth, about this leakage. If the leakage you refer to in your direct examination refers to *other* things other than the condensation and slow meters you have referred to, I wish you would now state it.

A. It does not.

Q. Is there any natural leakage from the gas mains and pipes, because of your inability to make the joints fit perfectly, so as to keep the gas in?

A. Yes, sir; there is.

Q. Then you have that additional element?

A. Yes, sir.

Q. So there are three elements?

A. Yes, sir.

285 Q. Are there any other elements?

A. No, sir.

Q. Referring to the Exhibits I have mentioned, I wish you would take up the next one.

A. The next one was September 17th, 1898—repair service at 3534 M street. This service was stopped up and needed repair. What I mean by "stopped up" is that it had become foul with rust, and the accumulation of sediment that naturally occurs in a pipe.

Q. Do you mean, by "stopped", that there was a leak in it?

A. There was a stoppage, but no leak.

Q. Take up the next one.

A. The next one is February 18th, 1899—repair service 3153 M street—needed renewing on account of stoppage.

Q. Is that the same as the other one?

A. Yes, sir.

Q. Now continue.

A. May 3rd, 1901—repair service in 3290 M street—service cut off.

Q. Why?

A. Because this man was stealing gas, and that was the only way we could stop him.

Q. What do you mean by "stealing gas"?

A. We caught him stealing gas at one time and prosecuted him. We had him brought into court. I then had reason to believe that he was at it again, and the only way I could stop him was to cut the service off from the place.

286 Q. Now, continue.

A. July 6th, 1901—repair service 3339 M street. This service was stopped and needed repair.

Q. Was that a leak?

A. No, sir; there was no leak there. There was just a stoppage.

Q. What was the next one?

A. March 18th, 1903—repair service in 3234 M street. This needed renewing on account of stoppage.

Q. Do you mean that there was a leak?

A. No, sir; there was no leak.

Q. Now, continue.

A. August 18th, 1902—repair service 3285 M street—needed renewing also on account of stoppage.

Q. What do you say with respect to a leak there?

A. No, sir; there was no leak there.

Q. Continue.

A. The next is September 28th, 1903—repair service 3221 M street—needed repair on account of stoppage:

Q. Was there any leak there?

A. No, sir; there was no leak there.

Q. I now call your attention to Exhibits Nos. 1, 2, 6, 7, 10, 11, 13, 16, 17, 19, 21 and 28, and ask you to state whether those exhibits, which commence with June 25th, 1897, and end June 28th, 1904, refer to leaks or repairs?

A. They do not.

Q. To what do they refer?

287 A. To new service entirely, except that of August 7th, 1901—connecting gas main on M street between 35th and 36th streets (Exhibit 16).

Q. What do you say about that?

A. We did not use that permit. I did that work later.

Q. What do you mean by "later"?

A. Well, I did it in August or September of this year.

Q. What did you find as to whether there was any leakage, when you opened the main in August or September of this year?

A. I did not find any leakage there at all.

Q. During the period of these contracts, commencing the 16th of September, 1896, and extending down to and including the month of June, 1903, I will ask you whether there was any digging up of the roadway or gas main in M street, between 33rd and 36th streets, other than what you have just stated?

A. No, sir.

Q. What was the occasion of your getting a new permit to make the excavation between 35th and 36th streets, northwest, in August or September of this year?

A. I had lost the permit, and had occasion to go and get another one. That was all.

Q. What was the condition of the street, as to leakage of gas, or smell of gas, when you dug that main up?

A. I found no leakage whatever.

Q. What did you do on that occasion?

288 A. I stripped the main on the north side for a space of between 30 and 50 feet.

Q. What do you mean by "stripped the main?"

A. I excavated it entirely, that is cleaned the earth right off from it. I intended to run across and connect with the main on the south side of M street, at a point not so far down the street, but when I started across I struck an old conduit of the Washington Railway Company there, so I had to continue on the north side down in the other direction, and cut across. That occasioned the amount of cut I made there.

Q. How long had that main been down there?

A. It had been down since the year 1895. I am speaking now about the main on the north side.

Q. Where did that main on the north side of M street commence?

A. At Potomac and M streets.

Q. How far west on M street does it run?

A. It runs to the end of the street, to 36th street.

Q. Has there ever been any reported leak in that main?

Mr. WORTHINGTON: I object to any questions with regard to reports, on the ground that the reports are not evidence, nor is the absence of them evidence.

Mr. THOMAS: It indicates the absence of notice of anything requiring repair.

A. No, sir.

By Mr. THOMAS:

Q. Were you in charge of the work when the main  
289 was laid?

A. Yes, sir.

Q. Do you know who laid it, and what was the experience of the man who did the work?

A. Yes, sir.

Q. You may state about that.

A. It was laid under my supervision, by an expert mechanic.

Q. Who was the expert mechanic?

A. Mr. James Donahue was the man in charge of that work.

Q. How long had you been engaged in superintending work of that kind at the time this main was laid?

A. About six or seven years.

Q. Since the main was laid, have you or have you not had experience in laying mains?

A. Yes, sir.

Q. Were you present, in August or September of this year, when the main was stripped?

A. Yes, sir; when a part of it was.

Q. The part you have testified to?

A. Yes, sir.

Q. You may now state what its condition was when it was stripped.

A. The condition of the main when it was stripped was first-class.

Q. You may state whether it needed any repair?

A. It did not.

290 Q. When this main was laid, what test was made of it, if any?

A. We always prove our pipes either with gas or air.

Q. You may state whether that was done with this main at the time it was laid?

A. Yes, sir.

Q. State how the trench was made at the time the main was laid, and what care was exercised in digging the trench and laying the main?

A. The ordinary care, which required first-class work.

Q. Can you describe how the trench or ditch was excavated, preparatory to laying the main?

A. We generally dug—

Q. I am talking about this particular main?

A. The ditch was dug with ordinary care and accuracy, and the main was laid in that ditch. After the main was laid and caulked we generally prove it as I have just stated, after which, if the main is absolutely tight, we fill in. The filling is generally about a foot of fine earth, put over the top of the main and rammed thoroughly, so that all the particles of the main, underneath, will have a resting place and support on either side. The main is rammed very thoroughly with soft fine earth, generally to the depth of 12 inches.

Q. You have been speaking in the abstract. Did you not, in your last answer, refer to the laying of this particular main?

291 A. Yes, sir; I referred to this main. That is what you are asking me about.

Redirect Examination.

By Mr. WORTHINGTON:

Q. Is there any illuminating gas service on M street between 31st and 36th streets, except that which is provided by your company?

A. No, sir.

Q. And there has not been at any time any other illuminating gas service there?

A. No, sir.

Q. Do you know, of your own knowledge, when the main on the south side of M street between 31st and 36th streets was put down?

A. I think the main on the south side of M street between 31st and 32nd streets, was placed there in the year 1892. I placed it there myself.

Q. When was the main from 32nd street to 36th street, on the south side of M street, laid down?

A. Judging by the reports of the superintendent, prior to my being appointed superintendent, that was laid in the year

1860. That is a 3-inch main, and the one I refer to on M street between 31st and 32nd streets is a 6-inch main.

Q. Then, so far as your records show, from your examination of them, the main from 32nd to 36th street-, on the south side of M street, has been laid there in the neighborhood of 45 years?

A. Yes, sir.

292 Q. You said something to Mr. Thomas just now about the 10-per cent. leakage to which you referred in your former examination, being confined to a certain class of leaks. Please state that over again.

A. It consists of condensation, slow meters, and leakage in the pipes, caused by contraction and expansion.

Q. You spoke a little while ago of an accident which occurred and estimated that there was in the neighborhood of 5,000 feet of gas wasted. Do you include that sort of loss in your 10 per cent. leakage?

A. Yes, sir.

Q. Then that is still another class, is it not?

A. I don't know what you might call it, but that, of course, goes into the general leakage account.

Q. According to your observation, does a gas pipe ever wear out or does it last forever?

A. I could not begin to tell you the life-time of a pipe; but I judge it is 50 years. Of course it all depends upon the soil and where the main is placed.

Q. It depends somewhat, of course, upon the soil, moisture, &c.?

A. Yes, sir.

Q. When did your company begin to supply illuminating gas in Georgetown, in other words, when were the first mains laid?

A. Between 1854 and 1857, I think.

Q. I read something in the paper the other day about the explosion of gas on M street near the point we are now  
293 examining you about. What was that?

A. The explosion was caused by the accumulation of gas in a lamp-post which had been placed there by the District for a fire-alarm and telephone system. I am only speaking from hearsay now. A drunken man leaned up against that and smelled gas and struck a lighted match in it.

Q. You do not mean that this gas had accumulated in a gas-lamp?

A. I mean that it had accumulated in this post. There was a connection with our main, and there was a slight leak there, and it of course went into the lamp-post.

Q. Where was the leak?



A. The leak was in the service-pipe.

Q. At what point in the service-pipe?

A. At the point where it joins onto the main.

Q. And the gas had escaped into the post?

A. It worked its way back into this reservoir, and there it stayed.

Q. Was that a new post or an old one?

A. It was a new post. It had been there only a few weeks.

Q. How far back did the gas work in that way?

A. For about two feet.

Q. I understood you a little while ago to say something about looking for a gas leak in one place and finding it three or four doors away. Is that true?

A. Yes, sir.

Q. I wish you would tell me about that.

294 A. What do you mean?

Q. Where did the complaint of gas come from?

A. The complaint of gas came from Mr. Waddy, a hatter. There was a smell of gas in his cellar.

Q. You found that when you went there?

A. Yes, sir; we found it coming into his cellar.

Q. Your first impression was that the trouble was with his service pipe?

A. Yes, sir.

Q. And as a matter of fact you found that the trouble was where?

A. It was in the service one door above, in the neighborhood of 12 or 14 feet away, you might say. I may state that this gas did not find its way down by the main, because the main was in the street. It found its way down in the sidewalk.

ROBERT L. MIDDLETON,

*By the Examiner by Consent.*

Subscribed and sworn to before me this — day of —, A. D.

—.

— — —.

Counsel for the complainant thereupon offered in evidence the original of the contracts mentioned in the bill of complaint.

It was agreed by and between counsel for the respective parties that copies thereof should be made by the Examiner and filed herewith, and the originals thereof be produced at the hearing, if desired.

Said contracts are filed herewith and marked "Complainant's Exhibit Contract No. 1" and "Complainant's Exhibit Contract No. 2."

Testimony on behalf of the complainant was thereupon announced closed.

## 295 LIST OF EXHIBITS JARS &amp;C., FOR COMPL'T &amp; DEF'TS.

Filed July 28, 1905.

Testimony and Exhibits filed July 28th, 1905, by WM. HERBERT SMITH, Examiner in Chancery, in case of BARBER ASPHALT PAVING CO. *vs.* DISTRICT OF COLUMBIA ET AL., IN EQUITY, No. 23,774.

Complainant's Testimony and Exhibits as follows:

Small bottle, marked "Exhibit Bottle."

1 glass jar marked "Exhibit Jar No. 1."

1 glass jar marked "Exhibit Jar No. 2."

1 glass jar marked "Exhibit Jar No. 3."

1 glass jar marked "Exhibit Jar No. 4."

1 glass jar marked "Exhibit Richards No. 1."

1 glass jar marked "Exhibit Richards No. 2."

1 glass jar marked "Exhibit Richards No. 3."

1 sample of asphalt marked "Exhibit Richards No. 4."

1 glass jar marked "Exhibit Richards No. 5."

1 glass jar marked "Exhibit Richards No. 6."

1 glass jar marked "Exhibit Richards No. 7."

1 glass jar marked "Exhibit Richards No. 8."

1 glass jar marked "Exhibit Richards No. 9."

1 glass jar marked "Exhibit Richards No. 10."

1 sample of asphalt marked "Exhibit Richards No. 11."

1 sample of asphalt marked "Exhibit Richards No. 12."

1 sample of asphalt marked "Exhibit Richards No. 13."

1 sample of asphalt marked "Exhibit Richards No. 14."

1 sample of asphalt marked "Exhibit Richards No. 15."

1 sample of asphalt marked "Exhibit Richards No. 16."

28 applications for permits marked Exhibits Woodward Nos. 1 to 28, inclusive.

1 tabulated statement, marked Exhibit Richards No. 17.

1 Contract, marked "Exhibit Contract No. 1."

1 Contract, marked "Exhibit Contract No. 2."

Defendants' Testimony, and Exhibits as follows:

1 sample of asphalt marked "Exhibit Dow No. 1."

1 sample of asphalt marked "Exhibit Dow No. 2."

1 sample of asphalt marked "Exhibit Dow No. 3."

1 tin can containing samples of asphalt, marked "Exhibit Dow No. 4."

1 typewritten memorandum, marked "Exhibit Dow No. 5."

1 map, marked "Exhibit Dow No. 6."

1 map marked "Exhibit Dow No. 7."

1 sample of asphalt, marked "For Identification, "Exhibit Dow Cross-Ex. No. 1."

1 sample of asphalt, marked "For Identification, "Exhibit Dow Cross-Ex. No. 2."

3 sheets of tabulated statement, marked "Exhibit Burns No. 1."

1 sample of asphalt marked "Exhibit C. E. M. No. 1."

1 glass jar marked "Exhibit C. E. M. No. 2."

1 glass jar marked "Exhibit C. E. M. No. 3."

1 glass jar marked "Exhibit C. E. M. No. 4."

1 glass jar marked "Exhibit C. E. M. No. 5."

1 glass jar marked "Exhibit C. E. M. No. 6."

296 *Complainants' Exhibit Contract No. 1.*

Filed July 28, 1905.

This Contract, made and concluded this sixteenth day of September, in the year of our Lord one thousand eight hundred and ninety-six, by and between the District of Columbia, of the first part, and The Barber Asphalt Paving Company, a corporation duly incorporated under the laws of the State of West Virginia, by Francis V. Greene, President of said Corporation, of the second part,—

WITNESSETH:

First. That the said party of the second part for itself, its successors, has agreed, and by these presents does agree, with the said party of the first part, for the consideration hereinafter mentioned and contained, and under the penalty expressed in a bond bearing even date with these presents, and hereunto annexed, to furnish all necessary labor and material, except as otherwise herein provided, and in a good, firm and substantial manner, in strict accordance with the specifications and general stipulations hereunto attached and made a part of this contract, execute the following described work, to-wit:

Lay Standard Asphalt pavements upon a six (6) inch hydraulic base or an eight (8) inch hydraulic base, two inch binder and two inch asphalt surface before compression, upon such streets and avenues in the District of Columbia as may hereafter be ordered by the Commissioners of said District, during the fiscal year ending June 30, 1897.

Second. It is agreed that the party of the second part shall receive in payment for executing the aforesaid work, complete, the following prices, viz:

For laying Standard Asphalt pavement on six (6)  
297 inch hydraulic base, two (2) inch binder and two (2)  
inch asphalt surface, before compression, one dollar and  
sixty-three (1.63) cents per square yard;

For laying standard asphalt pavement on eight (8) inch hydraulic base, two inch binder and two inch asphalt surface before compression, one dollar and eighty-three (1.83) cents per square yard; and for such additional work as may be ordered by the Engineer Commissioner, the prices stated in the specifications hereto attached.

Payments to be made in warrants for cash upon the United States Treasury.

In Witness Whereof, the undersigned, John W. Ross, George Truesdell, and Charles F. Powell, Commissioners of the District of Columbia, appointed under the Act of Congress entitled "An act providing a permanent form of government for the District of Columbia," approved June 11th, 1878, and the party of the second part to these presents have hereunto set their hands and seals the day and year first above written.

JOHN W. ROSS, [L. S.]

GEORGE TRUESDELL, [L. S.]

CHAS. F. POWELL, [L. S.]

*Commissioners of the District of Columbia.*

THE BARBER ASPHALT PAVING CO.,  
F. V. GREENE, [L. S.]  
*President.*

[Seal of the Barber Asphalt Paving Company.]

Attest:

J. C. ROCK, *Secretary.*

298 Signed and sealed in the presence of—

M. ST. G. DAVIES,

W. TINDALL,

*As to Com's.*

\* \* \* \* \*

299-313 *Complainant's Exhibit Contract No. 2.*

This Contract, made and concluded this Nineteenth day of August, in the year of our lord one thousand eight hundred and ninety-seven, by and between the District of Columbia, of the first part, and the Barber Asphalt Paving Company, a corporation duly incorporated under the laws of the State of West Virginia by J. C. Rock, its attorneys in fact, of the second part—

WITNESSETH:

First. That the said party of the second part for itself and its successors has agreed, and by these presents does agree,

with the said party of the first part, for the consideration hereinafter mentioned and contained, and under the penalty expressed in a bond bearing even date with these presents, and hereunto annexed, to furnish all necessary labor and material, except as otherwise herein provided, and in a good, firm, and substantial manner, in strict accordance with the specifications and general stipulations hereunto attached and made a part of this contract, execute the following described work, to-wit:

Lay Standard Asphalt Pavement on a six (6) inch hydraulic base, two (2) inch binder and two and one-half ( $2\frac{1}{2}$ ) inch asphalt surface before compression; also, lay Vitrified Block upon a six (6) inch hydraulic base, upon such parts of the streets and avenues in the District of Columbia, named on the attached sheet, as may be ordered by the Engineer Commissioner of said District of Columbia, the prices to be paid for the above mentioned work are those written on said following sheet, and made a part of this contract.

314 Also, execute such additional work as may be ordered at the prices stated in paragraph thirty-seven (37) of the specifications.

Work to be commenced within ten (10) days from date of contract and completed on or before June 30, 1898.

Street.	Laying standing asphalt pavement on 6-inch hydraulic base, 2-inch binder and $2\frac{1}{2}$ -inch asphalt surface before compression, at per square yard.	Laying vitrified block on 6-inch hydraulic base at per square yard.
Northwest.		
11th, C to D	One dollar and fifty-five cents (1.55)	One dollar and twenty-seven cents (1.27)
12th, C to D	One dollar and fifty-five cents (1.55)	One dollar and twenty-seven cents (1.27)
11th, B to C	One dollar and fifty-five cents (1.55)	One dollar and twenty-seven cents (1.27)
R. I. ave., N. J. ave. to Fla. ave.	One dollar and fifty-four cents (1.54)	One dollar and twenty seven cents (1.27)

1st, Pierce to N. Y. ave.	One dollar and fifty-five cents (1.55)	One dollar and twenty-seven cents (1.27)
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Northeast.

Southeast.

Southwest.

3d st., I to K st.	One dollar and fifty-six cents (1.56)	One dollar and twenty-seven cents (1.27)
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Va. ave., S. Cap. st. to Del. ave.	One dollar and fifty-six cents (1.56)	One dollar and twenty-seven cents (1.27)
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N st., 4½ to 6th sts.	One dollar and fifty-six cents (1.56)	One dollar and twenty-seven cents (1.27)
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315 Georgetown.

M st., 31st to 32d sts. (north side)	One dollar and fifty-five cents (1.55)	One dollar and twenty-seven cents (1.27)
---	--	--

M st., 32d to 33d sts.	One dollar and fifty-seven and one- half cents (1.57½)	One dollar and twenty-seven cents (1.27)
---------------------------	--	--

Special.

Spruce and Bohrer sts., Larch to Florida ave.	One dollar and fifty-six and three- quarter cents (1.56¾)	One dollar and twenty-seven cents (1.27)
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It is further agreed that the party of the second part shall receive payments for performing the aforesaid work, by warrants on the United States Treasury, subject to the conditions of paragraph thirty-three (33) of the specifications attached.

In Witness Whereof, The undersigned John W. Ross, John B. Wight, and Edward Burr, (Acting), Commissioners of the District of Columbia, appointed under the Act of Congress entitled "An act providing a permanent form of government for the District of Columbia," approved June 11th, 1878, have hereunto set their hands, and caused the seal of the District of Columbia to be hereto affixed; and The Barber Asphalt Paving Company, by J. C. Rook, its attorney in fact, the party of the

second part, has hereto set his hand, and caused the seal of  
 said corporation to be hereto affixed the day and year  
 316 first hereinbefore written.

JOHN W. ROSS,  
 JOHN B. WIGHT,  
 EDW. BURR (acting),

*Commissioners of the District of Columbia.*

[Seal of The Barber Asphalt Paving Company.]

Attest:

FREDERICK WOOLEY, *Secretary.*

[Seal of the District of Columbia.]

THE BARBER ASPHALT PAVING CO.,  
 J. C. ROCK, *Att'y in fact.*

Signed and sealed in the presence of—

G. F. CHASE,  
 R. M. RICHARDS,  
 W. TINDALL,

*As to Com's.*

\* \* \* \* \*

4. Roadbed.—The area over which the pavement  
 317 & 318 is to be laid must be excavated to the proper depth  
 below the surface of the pavement when completed,  
 any objectionable or unsuitable matter below the bed being re-  
 moved to such depth as may be directed by the Engineer and the  
 space filled with good gravel compactly rolled or rammed. The  
 bed, after being trimmed so as to be parallel to the surface of the  
 pavement when completed, will be thoroughly compacted by  
 rolling, with a roller weighing not less than five (5) tons and  
 by heavy ramming at places which can not be reached by the  
 roller, wetting the bed before rolling or ramming, if required,  
 to the satisfaction of the Engineer. No extra allowance will  
 be allowed for trimming or rolling.

5. Foundation.—Upon the bed thus prepared there  
 319 will be laid a six (6) inch foundation of concrete, as  
 directed, made of broken stone and gravel, sand, and  
 natural cement in such proportions that the quantity of gravel  
 will be equal to the volume of voids in the broken stone, and the  
 sand and cement, mixed in the proportion of one (1) part  
 cement and two (2) parts sand, will be 20 per cent in excess of  
 the volume of voids in the combined gravel and broken stone.

6. Hydraulic Cement.—The cement in use shall be a natural

hydraulic cement, and shall conform to the current specifications for supplying such hydraulic cement to the Engineer Department of the District of Columbia. No hydraulic cement shall be used upon the work until it has been tested in the office of the Engineer Commissioner and accepted by him, the tests to extend over such a length of time, not exceeding twenty-eight days, as the Engineer Commissioner may think necessary. The cement while in storage or upon the work or while being hauled upon the work shall be properly protected, and no cement shall be used which in the opinion of the Engineer Commissioner has been injured by age or exposure. The cement shall be kept by the contractor in store, under proper cover, in the city of Washington, and subject to inspection for at least ten days before it is used on the streets, and if deemed advisable by the Engineer Commissioner, twenty-eight days.

\* \* \* \* \*

22. The attention of bidders is invited to the clause 320-326 of the current appropriation bill, which says:

“That under appropriations contained in this Act no contract shall be made for making or repairing concrete or asphalt pavement at a higher price than \$1.80 per square yard for a quality equal to the best laid in the District of Columbia prior to July 1st, 1886, and with same depth of base; *Provided*, That these conditions as to price and depth of base shall not apply to those streets on which, in the judgment of the Commissioners, by reason of heavy traffic, poor foundation, or other causes, a pavement of more than ordinary strength is required, in which case the limit of price may be increased to two dollars per square yard.”

The attention of bidders is also invited to the following paragraphs in the Act providing a permanent form of government for the District of Columbia (1878):

“9. And that the contractors shall keep new pavements or other new works in repair for a term of five years from the date of completion of their contracts.

“10. And ten per centum of the cost of all new works shall be retained as an additional security and a guarantee fund to keep the same in repair for said term, which said per centum shall be invested in registered bonds of the United States or of the District of Columbia and the interest thereon paid to said contractors.”

\* \* \* \* \*

27. The bidder is expected to examine the site before bidding, as no allowance will be made for any unusual difficulties which may arise, either affecting the original construction or maintenance of finished work.

\* \* \* \* \*



36. Guarantee.—All payments and other work  
 329 & 330 will be guaranteed and kept in repair by the contractor without cost to the District for a period of five years from date of its acceptance by the Commissioners. The date of the acceptance will be the date of the final voucher. Ten per centum of the cost of this work will be retained and disposed of as otherwise provided for herein.

It is further expressly understood and agreed that if any of the pavements laid should, for any reason whatsoever, within the period of five years, prove inferior to the best laid in the District prior to July 1, 1886, then the contractor shall, on demand of the Commissioners, remove such defective pavements and relay them with new material of approved quality  
 331 and in accordance with these specifications. The Engineer Commissioner shall decide the question of inferiority.

On expiration of guarantee for maintenance, the work is to be inspected, and all imperfections, depressions and unevenness of surface, alignment, and grade of curbs, sidewalks, etc., also cracks, rolls, breaking up of wearing or cushion coat or concrete base on asphalt pavement or sidewalk, must be corrected where and to such an extent as the Engineer Commissioner shall direct, upon which the Engineer Commissioner will accept the same in writing, and until such acceptance the guarantee shall be in force.

### 332-337 GENERAL STIPULATIONS—LABOR.

1. Specifications—These instructions and stipulations are part of the specifications.

\* \* \* \* \*

338 7. Bond.—Good and sufficient bonds in a penal sum equal to the estimated amount of the contract, with sureties satisfactory to the Commissioners, will be required from all contractors guaranteeing that their contract will be faithfully performed; that the contractors will keep new pavements or other new works in repair for a term of five years from the date of the completion of their contract, and be responsible for all damages to persons or property resulting from their work. Ten per centum of the cost of all new works will be retained as an additional security and a guarantee fund to keep the same in repair for said term, and the money so retained will be disposed of pursuant to the provisions of an act of Congress entitled "An act authorizing the Treasurer of the United States to credit the District of Columbia with certain moneys in lieu of investing the same in bonds," approved March 3, 1887. The retain

fund shall be subjected to the control of the Commissioners of the District of Columbia, for the purpose of maintaining the work in repair and making good defects discovered during the period specified, and the Commissioners, at their discretion, may require of the contractor and his sureties that any portion of the said retain fund which may have been expended for the maintenance of the work shall be made good by further deposit.

\* \* \* \* \*

339 9. Extras.—All loss or damage due to negligence or arising out of the nature of the work to be done, or from any unforeseen or unusual obstruction or difficulties which may be encountered in the prosecution of the same, or from the action of the elements will be sustained by the contractors. They will remove from the line of the work all surplus material, earth, rubbish, etc., immediately after completion of the work, and do all the work set forth in these specifications without other compensation than the prices named in their bid, unless otherwise mentioned in the specifications. The contractor must be prepared to do any extra work that may be ordered, in writing by the Engineer, arising out of any modification of the specifications that may appear necessary, and for this he will be paid at the contract rates for work of similar character; or, if the extra work should be of a class for which no rate is fixed by the contract, the actual reasonable cost to the contractor, as determined by the Engineer, plus — per cent.

\* \* \* \* \*

340 12. Inspection.—Inspectors shall be appointed who shall have access to all parts of the work at all times and whose duty it shall be to point out to the contractors any neglect or disregard of the specifications of contracts; but the  
341 right of final rejection of the work will not be waived at any time. Upon all technical questions concerning the execution of the work in accordance with the specifications and the measurements thereof the decision of the Engineer shall be final. Ordinarily, one inspector will be employed by the District for each section of the work under contract; but, if on account of any apparent disregard of the specifications additional inspectors should be required, they will be employed by the District at the rate of \$4.00 per diem, and the cost of the same will be charged to the contractor.

\* \* \* \* \*

342 16. Interpretation.—Any doubt as to the meaning of these specifications will be explained by the Engineer, who shall have the right to correct any errors or omissions in them when such correction is necessary for the proper fulfillment of their intention. Whenever the word "Commissioners"

is used in these specifications, it is understood to designate the Commissioners of the District of Columbia. Whenever the word "Engineer" is used, it is understood to designate the Engineer Commissioner of the District of Columbia, or, in his absence, his duly appointed assistants, assistant engineers and inspectors representing him, limited by the special duties entrusted to them.

\* \* \* \* \*

343-349      *Testimony on Behalf of Defendants.*

Filed July 28, 1905.

In the Supreme Court of the District of Columbia.

In Equity. No. 23,774.

BARBER ASPHALT PAVING COMPANY

vs.

THE DISTRICT OF COLUMBIA.

*Testimony in Behalf of the Defendant.*

WASHINGTON, D. C., *February 21, 1905—3.30 o'clock p. m.*

Met pursuant to agreement.

Present on behalf of the complainant, Mr. WORTHINGTON.

Present on behalf of the defendant, Mr. THOMAS.

Whereupon, ALLEN W. DOW, a witness of lawful age, called by and on behalf of the defendant, having been first duly sworn, is examined,

By Mr. THOMAS:

Q. What is your profession?

A. I am a chemical engineer.

Q. What is your present official position?

A. Inspector of asphalts and cements for the District of Columbia.

Q. How long have you occupied that position?

350      A. Since the spring of 1894.

Q. Will you be kind enough to state what your experience has been in your profession?

A. I graduated from the School of Mines of Columbia College in 1888, and immediately afterwards entered the employ of the Barber Asphalt Paving Company, as assistant chemist, where I stayed until the spring of 1894, when I was appointed to my present position.

Q. Have you testified in any cases as a chemical engineer?

A. Yes, sir.

Q. What experience have you had in testifying as an expert?

A. Considerable experience.

Q. Has your testimony been received in the courts, as an expert?

A. It has.

Q. In your profession?

A. Yes.

Q. On page 5 of the complainant's testimony, Mr. Clifford Richardson testified that there is evidence, where the surface of the street is subjected to traffic, in the parallel breaking down of the material in lines running in the same direction as the traffic on the street, and he says: "I have never seen anything of that description which could be due to any other source"—meaning illuminating gas as the source.

Please state whether you agree with that statement of Mr. Richardson?

351 A. No, I do not. These parallel lines are found wherever the underneath portion of the wearing surface of the pavement is softened either by disintegration from water or softening by gas or by soft binder, &c.

Q. Have you any samples which will illustrate this statement?

A. Yes, I have a sample taken by me in the presence of Professor Monroe.

Q. What is Professor Monroe's name?

A. C. E. Monroe.

Q. Where is he employed?

A. He is Professor of Chemistry at the George Washington University.

Q. Do you remember when these samples were taken?

A. Last summer some time. The date is on the sample.

Q. Please produce it.

(The witness produces the sample referred to.)

Q. What is this you produce?

A. It is a sample taken out south of the Treasury, between the Treasury Department and Sherman monument, on the south side of Executive Avenue. It was taken in the presence of Professor Monroe who wrote that memorandum, and there was no indication of illuminating gas, either by odor or appearance, and yet it showed the cracks running parallel to the traffic of the pavement, and it is known as a pavement that has been disintegrated by water.

Mr. THOMAS: I offer this sample in evidence.



Upon the above mentioned sample is a written memorandum, as follows:

Said sample is filed herewith, and marked "Exhibit Dow No. 1."

By Mr. THOMAS:

Q. The date in pencil marked on Exhibit Dow No. 1, was placed there when?

A. It was placed there at the time the sample was taken.

Q. That date is what?

A. July 14, 1904.

Q. On page 8 of his testimony, Mr. Richardson testifies that he cannot identify any particular locality where the repairs were going on in November, 1902, because the repairs were being made under the inspector of asphalts and cements; but he said, "I remember one locality on the corner of 31st street and M street, where I particularly smelled gas very strongly, at a time when Mr. Dow was present."

What have you to say to that statement of Mr. Richardson?

A. I was not present at the time the pavement was removed from 31st and M street, and never noticed gas in any pavement there. The pavement was removed from this portion of the street against my orders, which were to the effect that all the pavement should be left on the street until I had examined it, before it was carried away. This was removed early in the morning, before I arrived on the street.

Q. Had you, in fact, at any time previous made any test hole at this place?

A. I made one test hole in front of the corner house, and found the pavement disintegrated from water; but no gas.

Q. What number was the corner house?

A. It was 3100 I believe.

Q. 3100 M street?

A. I cannot tell definitely without referring to my notes.

Q. Have you got your notes here?

A. Yes. This sample is indicated on the plat. I know it was taken from right in front of the corner house.

Q. It is testified here on page 8, by Mr. Richardson, that he observed no evidence that the disintegration he mentioned, in the pavement, as described by him, was due to any other cause except that after gas had attacked the asphalt and disintegrated it it was then attacked by water.

What have you to say, as a chemist, as to whether it was possible to tell, without actual knowledge and examination and thorough tests, whether the gas had attacked the asphalt before it was attacked by water; and you may state, if you will and

can, which, in your opinion, attacked the pavement first, the gas or the water?

A. It is impossible for any one to tell unless they have watched it closely and made a thorough examination of it, if both water and gas have attacked a pavement, which attacked it first. It is my impression from former visits to this  
354 pavement, which I made, that water disintegrated it first, because the gas was not noticed in it until the end of its life.

Q. Over what period of time, prior to May, 1902, did your examination of this pavement, wherein you found that it was rotted by water, extend?

A. Possibly for two years at least, I should say.

Q. During the whole of that period of two years, while you were observing this pavement, will you state whether there were any evidences of gas in the pavement, discernible either from the appearance of the pavement or by reason of any smell of gas, or otherwise?

A. I cannot remember ever having noticed gas in the pavement, before 1902.

Q. When you say you cannot remember, will you state how readily you were then able to discern the appearance of gas in an asphalt pavement?

A. I had had considerable experience in studying the effects of gas on asphalt pavements before that, and was perfectly familiar with the looks of the pavements.

Q. Will you state whether, during the period of two years mentioned, you observed that there was any smell or indication of gas in that pavement?

A. No; I do not remember to have noticed any indication of it.

Q. On page 14 of his testimony, Mr. Richardson, in speaking of an examination which he made in November, 1902, says: "The usual black color was observed at many points where the binder course comes in contact with the concrete." Will  
355 you please state whether this observation was correct?

A. I would not say that it occurred at many points. In fact there were very few points where I noticed this black coloration. It generally occurs where gas comes up through the concrete and acts on the pavement. I should say it was less than 5% of the total surface of the area of the pavement, which showed the black coloration.

Q. Mr. Richardson states, on page 13 of his testimony, that there were decided evidences of the action of moisture on the asphalt on his two visits to M street at 31st street. You may state whether that is correct?

A. That is correct.

Q. He also states, on page 15 of his testimony, that the action of water and asphalt, where it is due to any inferiority of the mixture, is much more rapid than that of illuminating gas. Is that correct?

A. That is rather a hard question to answer, because the action of gas and water on pavements are different. The gas softens the asphalt cement, while the water disintegrates it. It would really be hard to compare them, for that reason.

Q. Have you ever found, in your experience, a pavement which was disintegrated from illuminating gas, and in which no water was present?

A. No, I have not.

Q. How would each of these two agents, illuminating gas and water, act, if you can describe such action?

A. Separately, they act as I have described. The illuminating gas will soften all bitumens, turning them, in  
356 time, into a thick oil. I may say that all bitumens are more or less acted upon by water, but some much more than others. In the case of the asphalt used in this street, the action of water on it was quite rapid. The asphalt cement seems to absorb the water, and it swells it into a brown mass which can easily be crumbled, like mud, between the fingers.

Q. You have stated generally the action of water upon the pavement; but you have not stated definitely whether the action of water on asphalt, where it is due to any inferiority of the mixture, is more rapid than that of illuminating gas, or whether you agree with Mr. Richardson in that matter. Do you agree with him in that respect?

A. Considering that the action is different, it is rather hard to say that I agree with him or that I disagree with him on that subject. It is a well recognized fact that mixtures made with improper sands are more porous and are much more readily affected by water than if they were made of sands with the voids better filled.

Q. From time to time, prior to May 1902 and subsequently, did you have occasion to visit M street between the points in controversy in this case?

A. Yes; on a number of occasions. This pavement was disintegrating from the action of the water, and I used it to illustrate this fact, to several parties. I, myself, visited it several times alone, to watch the progress of the action of the water.

Q. What have you to say respecting the reason for the presence of the water in the concrete on M street?

357 A. Do you mean in the concrete or in the pavement?

Q. In the concrete and pavement?

A. My theory is that the water seeps up through some porous strata into the concrete, which, being porous, absorbs it and

brings it into contact with the underneath portion of the pavement. This water likely comes from the hills back of M street.

Mr. WORTHINGTON: I object to this line of testimony on the ground that the witness is apparently guessing, and not giving an opinion which is based upon anything tangible.

By Mr. THOMAS:

Q. You make a distinction between concrete and pavement. I wish you would explain what the difference is.

A. Concrete is a mixture of stone and sand with some cementing material or, I may say, of stone, gravel, sand and some cementing material. In this case natural cement was used as the cementing material, which was placed in the pavement proper to support it, thus making a rigid foundation. The pavement proper is composed of a binder made of stone, and bituminous cement, and on this is laid the wearing surface of sand, mixed with asphaltic cement.

Q. You have spoken regarding the presence of water in concrete and in the pavement, and alluded to the place from which the water came, in your opinion. Upon what do you base that opinion?

A. Whenever the pavement was taken up, the concrete was found in a damp condition, and in one place on M street, just south of 32nd street, on the north side of the way, the  
358 brick gutter had been damaged and a small pool of water stood in the hole for a considerable time—all through the dry season. The cellars in several of the houses on M street, which I visited, are very damp, and, in the case of one of them, the proprietor of the store told me—

Mr. WORTHINGTON: I object to what the proprietor of the store told the witness.

Mr. THOMAS: You cannot state what the proprietor told you. You can state what you saw.

A. Well, I will say they were damp.

By Mr. THOMAS:

Q. During your inspections of this street, were there any indications of any breaking of water service pipes or water mains, that you noticed?

A. No; I have not noticed any evidence of that.

Q. You may state whether there are hills on the north of M street, and how close to M street the rise is.

A. M street is really on this side of a hill. It rises quite sharply above M street.

Q. Will you state generally whether the hills at this point,



immediately north of and adjacent to M street, do not slope towards the river and across M street?

A. They do.

Q. I will ask you whether or not there is a low grade at 31st street extending to a higher grade at 32nd street, and from that on to 34th street, and then a lower grade to 36th and M streets?

A. Yes, there is.

359 Q. It has been testified by Mr. Richardson, at page 16 of his testimony, referring to the high ground at 34th street and the low ground at 36th street, as follows: "There seemed to me to be quite as much disintegration at the high ground as though the gas had risen in that direction."

You may state whether that is correct, and whether there is as much disintegration at the high ground?

A. Yes; there appears to be at that point as much disintegration in the high ground as in the low ground.

Q. What can you say of the condition found between 31st street and 32nd street?

A. There is more disintegration on the low ground than on the high ground, in that case. There is more disintegration near 31st street than there is near 32nd street.

Q. Is there not at the higher point of 31st street, to the north, a high bluff that would collect water?

A. Yes, there is, and this might possibly explain why the disintegration is as much at the top of the hill as there is at the foot.

Q. On page 17 Mr. Richardson is asked this question, and makes this answer:

"Where an asphalt pavement has been affected by, and disintegrated by illuminating gas, is or is not the smell of gas always found?

"A. It may not be always found, as is illustrated by this sample which I have taken. Exposed to the air for a long time, at a temperature which is moderately warm, the gas will disappear so that it cannot be detected by many nostrils whose capacity for smell is not very acute."

360 What do you say about the statement? Do you agree with Mr. Richardson in that respect or not?

A. I do not. I have never found any case where a pavement is in a continuous sheet, such as this on the street, where it has lost the smell of illuminating gas. It may, however, when taken up and crumbled into small pieces, lose this odor in a short time. I have a sample here which I can use to illustrate the continuity of the smell of illuminating gas in asphalt pavements. It has been up from the street over three years, on the roof of the District Building for nearly two years, exposed to

the heat of the sun of summer and the cold and ice and water of winter, and it still smells strongly of illuminating gas.

Q. I wish you would produce this sample.

A. Here it is. (The witness produces the sample).

Mr. THOMAS: I offer this sample in evidence.

The above-mentioned sample is marked "Exhibit Dow No. 2."

The WITNESS: It has a brass tag on it which refers to the sample number in the laboratory index book. It is marked "11th street" and has this illuminating gas smell.

I also have another sample here which comes closer to our case, as it comes from M street. This sample is marked 128 M. This number refers to a number on a plat which will be produced.

By Mr. THOMAS:

Q. Does that smell of illuminating gas?

A. Yes; and this has been up nearly a year, on the  
361 roof of the District Building.

Q. How long has that been removed from the pavement?

A. That I cannot say without looking at the plat, to see what contract it belonged to.

Q. Approximately how long?

A. Over a year, I should say.

Mr. THOMAS: I offer this sample in evidence.

The above mentioned sample is filed herewith and marked Exhibit Dow No. 3.

Q. On page 18 of Mr. Richardson's testimony, Mr. Worthington reads from page 111 of your report to the District Commissioners for June 30th, 1899, the report itself being dated August 18th, 1899, as follows:

"Disintegration of pavements from the absorption of illuminating gas, escaping from leaky gas pipes or mains under the pavement. There are several streets in the city being ruined by this means, and it appears to be a common thing in all cities having gas. The pavements are affected in very much the same way as when disintegrated by coal-tar binder, except the fine cracks, running parallel with the street, make their appearance some time before the pavement begins to crowd. Pieces of the surface mixture taken up smell very strongly of illuminating gas, and in some cases the gas can be ignited by applying a match to the under surface when it has just been taken up. In nearly every case enough gas will be given off

by heating a small piece of the affected pavement in a tube to have it flash by igniting.

362 "As it has been doubted by some that this disintegration is really due to illuminating gas, I have made a most thorough investigation of the subject and believe have positively proven that gas is the cause."

What do you say in respect of your opinion, as stated in the report last mentioned?

A. I will state that my opinion, stated at that time, was based on examinations made on only one asphalt. We had had little or no experience with other asphalts, and finding in every case, where the pavement smelled of gas, this disintegration, it was natural to infer that gas was the prime agent. It is very clear to anyone that a pavement cannot exist on the street without being wet by rain and other means; and after having studied the gas on other asphalt pavements it was found that they were not so readily affected as were the Trinidad pavements. Accordingly, after such examinations, I inferred that the gas softens the asphalt, which allows more readily the entrance of the water into it, and that gas is really not the prime factor in the disintegration of the pavement.

Q. The pavements which you observed at the time you made this report were constructed of what kind of asphalt?

A. Of Trinidad asphalt.

Q. Have you known cases where pavements of Bermudez asphalt, showing cracks, have not rotted?

A. Yes, I have.

Q. What becomes of the cracks in such pavements?

A. They stay in the pavement for a while, and slowly disappear. When the gas first attacks the pavement the cracks will appear in the summer time, and, as the pavement 363 hardens with the cold weather they disappear again.

Q. You are referring now to what kind of asphalt?

A. To Bermudez asphalt, which is not readily attacked by water.

Q. Can you produce any samples of Trinidad asphalt compared with Bermudez asphalt, which show the effect of combined gas and water on the respective samples?

A. I can. I have here two samples that have been soaking in water and gas for about a year. These samples are asphalt cements of the same degree of softness, one made with Bermudez asphalt and the other with Trinidad asphalt, coated onto a small piece of glass and partially submerged in water. The little glass dish of water was contained in a glass jar, into which I passed illuminating gas from time to time. The glass dish, with the two samples in it, was removed from the jar, because it was too cumbersome and we had need for it, and they were brought over here in this tin can.

Q. I wish you would produce those samples.

A. I do produce them.

Mr. THOMAS: I offer these samples in evidence.

The above mentioned samples are filed herewith and marked Exhibit Dow No. 4.

Q. I wish you would describe the effects of illuminating gas combined with water upon Trinidad asphalt and Bermudez asphalt respectively, as shown by this sample.

A. These two samples were put in at exactly the same date, and have undergone exactly the same conditions. The  
364 Bermudez asphalt softened by the gas has not flowed down into the water from the glass except to a slight extent. It has turned slightly brown and the water has eaten under it between the glass and the asphalt, but the asphalt does not crumble when touched. In the case of the Trinidad asphalt, it has not only flowed down into the water, by the softening of the gas, but it is so rotten from the water entering it that it is like a brown mud, and it could hardly be removed without, possibly breaking off from the glass. To show how the asphalt cement was coated on the glass before immersing it in the water, and what it looked like, I have here a third sample which has just been coated, as an illustration of what they looked like.

Q. Coated with what kind of asphalt?

A. I do not know what kind this was. It was merely to show what they looked like. They all look the same when they are first coated.

Q. When were these samples placed in this preparation?

A. They were placed in there on the 25th of April, 1903.

Q. Have they remained in that preparation ever since that?

A. They have.

Q. What is the liquid in which they were placed?

A. It is distilled water, and illuminating gas was passed into it from time to time for about a year, and after that, I might say, the gas was discontinued.

The further taking of these depositions was thereupon  
365 adjourned until Friday, February 24th, 1905, at 3 o'clock p. m.

366 WASHINGTON, D. C., *February 24, 1905*—3 o'clock p. m.

Met pursuant to adjournment.

Present on behalf of the complainant, Mr. WORTHINGTON.

Present on behalf of the defendant, Mr. THOMAS.

Whereupon, ALLEN W. DOW, resumed the stand for further direct examination,

By Mr. THOMAS:

Q. Can you tell us of a Bermudez asphalt pavement, laid in this District, which has been impregnated by gas and which has not been injured?

Mr. WORTHINGTON: I object to this line of examination as to the qualities of Bermudez asphalt, and the effect of water or gas or both on it, on the ground that it is wholly immaterial to any issue in this case. Let this objection stand once for all to this line of inquiry.

A. Yes; there is one on D street between Eighth and Ninth street, which was impregnated with gas and showed the lines running parallel with the traffic. This pavement showed those lines in the summer, in warm weather, and each winter they ironed out, so that you could hardly detect them. In the course of one or two years they entirely disappeared. While this pavement was cracking a trench was put through this street and the odor of gas was very perceptible. A similar  
367 case has been noted on D street between 14th and 15th streets, northwest.

Q. What conclusion do you draw respecting the action of illuminating gas on Bermudez asphalt, as compared with its action on Trinidad asphalt?

Mr. WORTHINGTON: My objection just stated is to cover all comparisons of this kind.

A. The conclusion that I draw from this is that where the asphalt is not badly affected by water it will not disintegrate with a moderate amount of gas, and will, in time, heal itself.

Q. Which asphalt resists the action of gas, if either more than the other?

A. I do not think that one resists it any more than the other, except that one being more readily acted upon by water, which is always present, is disintegrated more than the other.

Q. You can state whether it is a fact that in all the streets of the city where there are gas mains, there is not more or less of a leakage of gas?

A. Yes; there is bound to be more or less leakage of gas.

Q. What reason exists for that?

A. Several reasons might be cited—the expansion and contraction of the pipes, the loosening of the joints, and the settlement of the pipes, owing to the settlement of the ground.

Q. You have stated that there is always water present on the pavements. What do you mean by that?

368 A. A pavement that is exposed to the weather is always wet by rain and by sprinkling, and, in a great

many cases, water is absorbed up through the concrete. In those cases the underneath portions of the pavement are subjected to water.

Q. On page 20 of his testimony Mr. Richardson says that he only took samples from portions of the paved way in controversy that were disintegrated, and did not take samples from other portions that were rolling; and that he does not call rolling disintegrating but calls it displacement. What have you to say as to whether rolling is caused by disintegration?

A. It has been my experience that about 90 per cent., and possibly more, of all rolling is caused by disintegration of the underneath portion of the pavement, and, in a majority of cases, by water.

Q. How does that operate?

A. The water soaks up through the concrete and coming in contact with the lower portion of the pavement it disintegrates the asphalt. This wearing surface is in continual motion due to the traffic passing over it, and this kneading motion produces a sort of washing action of the moisture on the mixture. In this way the water slowly works up into the pavement, at the same time cleaning the grains of sand from the asphalt cement. When the underneath portions become disintegrated, that is no longer stable, the skin of good material on the surface pushes the poor material before it, which causes the rolls noted in pavements. There is only one case I have found  
369 in the District where a pavement has rolled and does not show the disintegrating action of water on the underneath portion of the wearing surface.

Q. Are all natural cement bases porous, and do all of them absorb water?

A. Yes; more or less.

Q. What have you to say in this regard respecting Portland cement, as to whether or not that is porous?

A. Yes; it is. The porosity of the concrete depends largely on the aggregate which it contains.

Q. Is the base provided for in the two contracts in this case bituminous concrete or cement concrete?

A. Cement concrete.

Q. In your opinion of what value is the experiment testified to by Professor Richardson on page 32, respecting the sample of Trinidad asphalt immersed in water in his laboratory for nine weeks, which he stated showed no evidence of being attacked by water?

A. I do not know the exact history of this sample of asphalt mixture which he speaks of. I have never been able to produce a mixture made by this formula, even when compressed very much more than the mixtures are in the street, that will not show

the disintegrating action of water. It may be, in the case that he refers to, that the mixture is treated as he describes in an article which he has recently written, where he allows a cylinder of the mixture to soak in water and then burnished it with a brazing iron, thus sealing the outside of the sample.

370 But this is not a practical condition, as the underneath portion of a pavement can never be burnished.

Q. What experiments, if any, have you made with mixtures of Trinidad asphalt, according to Mr. Richardson's formula, for the purpose of determining the injury to that asphalt by water?

A. I have made up several mixtures according to his formula, and to obtain mixtures made on a large scale, I have had paving companies make mixtures for me according to his formula, using the Portland cement filler, and have moulded those mixtures in prisms under a pressure never attained in practice on the street. On immersing them in water I have found that they showed disintegration much more rapidly than inferior mixtures made with Bermudez asphalt.

Q. Mr. Richardson testifies, in effect, that when Trinidad asphalt mixtures are properly made the same are not attacked by water in the street at all, unless submerged in it for many days at a time. Kindly state if you know whether the M street pavement has been practically immersed in water or not, and if so, for how long?

A. Returning to the condition which I have always found in the base on M street, when samples of the pavement have been taken out, it is very evident that the underneath portion of this pavement has been practically soaking in water since it was first laid, as the concrete has always been in a damp condition.

Q. Mr. Richardson testifies, on page 35, in effect, that the inspector of asphalts and cements (meaning yourself, 371 I assume), in one of his reports stated that he believed that the residuum of petroleum oil was one of the causes of the disintegration of pavements.

You may state whether this statement is correct?

A. I believe Mr. Richardson has misunderstood the report, as on reading it over I see no statement in it in which I say that petroleum oil was one of the causes for the disintegration of pavements. The work which led to this report was instituted to determine whether asphalts were completely soluble in the residuums of the eastern petroleum oils, a statement which Mr. Richardson had made in a previous article. This I found not to be the case, and I have proved it many times since then.

Q. Mr. Richardson testifies, on page 36, that Trinidad asphalt pavements require fewer repairs than any other; that the condition of M street is not attributable to the use of such asphalt;

and, finally, in speaking of M street at that location, he states that he has seen, in the last two or three years, pavements composed of Cuban asphalt which had suffered as much from gas in one year as Trinidad asphalt did in four years. Assuming that he is speaking of M street between 31st and 36th streets, what have you to say as to his statement respecting the condition of the Cuban asphalt there, if any, as compared with Trinidad asphalt.

A. I understood that Mr. Richardson and Mr. Cushman examined a piece of Cuban asphalt taken out of a patch cut by the gas company, and that it is claimed it showed signs of disintegration. Several weeks after this cut was made,  
372 before it was repaired, it was visited by Professor Monroe and myself. We had the men cut chips from the entire rim of this cut, and also broke open pieces of the pavement that had been thrown into the hole. In no case could we find any signs of disintegration. These pieces of pavement had been subject to the most severe treatment, as the hole was partially filled with mud, and nearly all the time it was open.

Q. Why was the Trinidad asphalt replaced, at that particular spot, by Cuban asphalt, if you know?

A. The Trinidad asphalt at that particular spot, was disintegrating from—I could not tell what it was disintegrating from without looking at the map. I cannot remember all of these places on the map.

Q. To what map do you refer?

A. To a plat which will be handed in as evidence.

Q. Have you got it with you?

A. Yes.

By Mr. WORTHINGTON:

Q. Who made the map?

A. Mr. Burns made the map; but I can testify to its being approximately correct.

Mr. THOMAS: I offer the map to the witness as an illustration, and until I can show its absolute accuracy I will not offer the map itself in evidence.

By Mr. THOMAS:

Q. I desire you to locate it, if you can, by reference to that map.

A. I have not got the data here to answer that. I have  
373 not got the number of the house here; but I can get that data.

Q. Do you know of any pavements laid in the same year that



the M street pavements were laid, which were attacked in the same way?

A. Yes; there were several spots in other pavements; but they were too immaterial in size to notice. The largest one found was in the pavement near the curb at the southeast corner of the city post-office.

Q. What was the trouble with that pavement?

A. It was disintegrating from water. No gas was present. There was a slight roll there, and it showed the evidence of water action.

Q. Can you tell me whether the pavement on M street from 31st to 36th street, under the contract and specifications mentioned in this case, proved inferior to the best laid pavements in the District prior to July 1st, 1886?

A. Yes; it did prove inferior.

Q. Mr. Cushman testifies, on page 49, that he made an examination of the M street pavements, between 31st and 36th streets, on the 5th day of November, 1902. Were you present when Mr. Cushman made those examinations?

A. Yes, sir; I was.

Q. I observe on page 51 of the record that he mentions a number of jars which he states will show the examinations made by him on November the 4th, 1902. Were you present when those samples were taken on the 4th of November, 1902?

A. I was present when some of them were taken.

374 Mr. Cushman says, on page 51, that the first sample taken was taken from the corner of M and 35th streets, on November 5th. What was the condition of the pavement at that point on the 5th of November, 1902, and in front of what place was that taken, if you can recall?

A. I cannot, without referring to the map.

Q. That is, you cannot recall the condition of the pavement from memory, nor the place?

A. Yes; it was disintegrating from the action of water and gas. I made a mistake there. I do remember that Mr. Cushman took all of these samples in places where it was disintegrating from water and gas.

Q. Do you know the dimensions of the repairs made there?

A. I do not.

Q. Does the map which you have spoken of indicate the amount of pavement taken up there?

A. Yes, it does.

Q. I wish you would tell us how that map was made and what information you gave Mr. Burns?

A. I gave him no information on the map. The information that Mr. Burns obtained was by going out as the repairs were being made, measuring up and placing those repairs on the map.

Mr. THOMAS: I will undertake hereafter to indicate the places by the testimony of Mr. Burns, more specifically.

Q. Were you present when Mr. Burns drew this map?

375 A. No, I was not; but I can testify that it is approximately correct, from conditions which I remember upon the street.

Q. Using the map as an illustration then, I wish you would state, if you can, on which side of M street it was that this sample was taken by Mr. Cushman on the 5th of November, 1902?

Mr. WORTHINGTON: I object to this witness giving any evidence from anything on this map, on the ground that it is in whole or in part hearsay evidence, and what is hearsay and what is not hearsay, are mixed together so that the whole is bad.

By Mr. THOMAS:

Q. What else have you to say about the map?

A. I, myself, personally located the cause of the disintegration of the various portions of the pavement, and put those on the map in blue and red pencil, as the case may be.

Q. In other words, you say that the marks in blue and red pencil on this map are your work?

A. The blue and red pencil marks are my work.

Q. And those blue and red pencil marks are what?

A. They are close approximations of the portions of the pavement, and how those portions of the pavements were injured.

Q. What does the red color indicate?

A. The red color indicates where gas was found.

Q. What does the blue color indicate?

376 A. The blue color indicates where water alone was found.

Q. Does the red color indicate the action of gas alone, or the combined action of gas and water?

A. The combined action of gas and water.

Q. Have you any indication there of gas alone, not combined with water?

A. There are two small places, one in the first contract, and one in the second contract, which we found.

Q. Have you the map of the second contract in your hand now?

A. Yes; this is the second contract map.

Q. Of these two small places, one was in the first contract and the other in the second?

A. Yes.

Q. While you have the plan of the second contract of work in your hand, I wish you would state whether you put the colors on that map?

A. I put the blue and red pencil marks on this map to indicate how the portions of the pavement which were replaced, were disintegrating. The portions colored by myself are close approximations, which I found on my personal inspection while the repairs were being made.

Q. Let me ask you whether all the colors on the second map were put there by you?

A. All the red and blue pencil colors were placed there by myself. There are a few dark red ink marks here which represent the part chargeable to the railroad company.

Q. Respecting the second map, will you state what the  
377 blue pencil marks indicate?

A. The blue pencil marks indicate that portion of the pavement affected by water alone.

Q. Will you state what the red pencil marks indicate?

A. The red pencil marks indicate that portion affected by the combined action of water and gas.

Q. You said awhile ago that there were two spots, one in each contract, where this pavement was affected by gas alone. Is that correct?

A. Yes.

Q. I wish you would state where those two places are.

A. In the second contract there was one place about a foot square, four feet east of the east rail of the 32nd street railroad, and about three feet north of the north rail of the M street railroad. This was rather an interesting case as illustrating the difference between gas acting on the surface mixture, with and without water. At this place the concrete base had evidently sunk under the roller, as it was depressed about six inches below the level of the rest of the concrete. This depression was filled in with a binder mixture, which prevented the water from the concrete coming in contact with the wearing surface. Right over this depression, where the wearing surface could not come in contact with the wet concrete, the mixture smelled of gas; but it did not show any signs of disintegration, while the mixture touching the edge of the concrete was damp, showed signs of disintegration, and the presence of water.

378 Referring now to the other instance, where you found the presence of gas alone, what have you to say about that?

A. The place on the first contract that was attacked by gas alone and contained no water, was in front of 3112 and 3114 M street. It was about one square yard in extent. The base was

covered with a dry white powder. Mr. Richards, the superintendent, called my attention to this condition, and upon examining it I found that while it smelled of gas the sand grains did not show. There was no water present. I called to the attention of Mr. Richards the fact that while the sample smelled of gas it showed no sign of disintegration.

Q. Referring now to the place at the corner of M and 35th street, where Mr. Cushman states he took his first sample on the 5th of November, I will ask you whether you marked that place on your map?

A. I did.

Q. When?

A. After hearing Mr. Cushman's testimony, I marked it approximately.

Q. Do you recall, by looking at your mark, where that place was?

A. I cannot recall whether I saw him take that sample or not.

Q. What was the condition at that place described by Mr. Cushman?

A. This indicates the action of water and gas combined.

379 Q. How much of a place was it?

A. A large place.

Q. To what extent was the pavement disintegrated there, from the combined action of gas and water?

A. I cannot remember that; but from the surrounding conditions I believe it was quite bad.

Q. Can you state, approximately, the amount of pavement taken up because of this defect?

A. I could measure that for you and tell you.

Q. I want to know whether you can give me the approximate measurement?

A. It would take me a shorter time to measure it than to guess at it.

By Mr. WORTHINGTON:

Q. Did you make the points on the map that you are measuring?

A. No; but I know they are approximately correct.

Q. Can you not state that from your memory, without testifying from marks made by somebody else?

A. It was about 75 feet long by 11 feet wide.

Q. Are you stating that from your independent recollection or are you aiding that recollection by looking at the map?

A. I am aiding my recollection by looking at the map.

By Mr. THOMAS:

Q. That is at the place of the mark you made?

A. Yes; in fact it could be considered longer than that, because it extended down to the next block.

Q. How much longer? I want to get some idea about  
380 what were the dimensions of this place.

A. The patch was about 140 feet long by 11 feet wide.

Q. Referring to sample jar No. 2, containing sample from the north side of M street near 34th street, toothing in brick gutter, were you with him when he took that sample?

A. I believe I was.

Q. What was the condition of the pavement at that place?

A. Disintegrated, from the combined action of water and gas.

Q. Jar No. 3, on the north side of M street, west of the west curb line of 34th street, three feet south of the north curb—were you present when that sample was taken?

A. That I cannot remember.

Q. Do you recall whether you were present when the sample, Jar No. 4, was taken, which Mr. Cushman stated was taken from the north side of M street 200 feet from 34th street, midway between the curb and the track.

A. No; I cannot recall. I cannot remember this, although I think I was present when he took all four of these samples. I cannot remember them, because I do not remember how he numbered them.

Q. At the places I have mentioned, where the four samples were taken from, can you tell us whether the pavement was disintegrating?

A. Yes; the pavement was disintegrating at those four places.

Q. Can you tell me from what cause?

381 A. From the combined action of gas and water.

Q. Mr. Cushman testified that in making his examination between 31st and 36th streets on November 5th, 1902, he observed that the concrete sub-base which was exposed east of where the pavement was being taken up was damp in places. Do you know to what point he refers?

A. I do not know exactly. There were two points which I showed him where the concrete was damp and the pavement disintegrating from the action of water lone, and there was no gas present.

Q. Where were those places?

A. One place was on the north side of M street just east of No. 3416, and the other place was on M street between 31st and 32nd streets. That is as near as I can locate the last place.

Q. Mr. Cushman says the weather was hot and dry, and that this moisture was observed on the slope of the hill; that

there was no natural cause from above to wet that asphalt, so far as he knows, and so he imagines that the wetness came up through the concrete base. Do you agree with that statement?

A. Yes, I do.

Q. Mr. Cushman says, at page 64, that concrete foundations made according to the specifications under these contracts, are not impervious to water. Do you agree with that statement?

A. Yes.

282 Q. He says, at page 66, that you have proved that capillary leaks can occur along gas mains at different places where, from a practical man's standpoint, there is no leak in the surface pipe. Do you agree to that statement?

A. Yes.

Q. I will ask you whether, during the number of times you were inspecting this street, and making examinations of this pavement along M street from 31st to 36th streets, you observed any leak in the gas main there?

A. I noticed the presence of gas, but I cannot say that it came from the gas main.

Q. The question is whether you observed any leak in the gas main?

A. No.

Q. How frequently did you inspect this pavement prior to making the repairs on the pavement?

A. A number of times, at odd occasions.

Q. Covering what period of time?

A. Covering a period of over two years. It was a pavement that was disintegrating from water, and I used it in studying this action. I would make frequently visits to it and cut into it, to note how the action was progressing.

Q. Mr. Cushman says, on page 76 of his testimony, that asphalt, after it has been attacked by water, or by the action of gas and water combined, tends to form a crumbly material which has not the adhesive qualities of the natural bitumen, but the asphalt is not necessarily, in his experience, thereby destroyed; and under certain conditions it may be made  
383 to come into a condition in which it will again bond.

What have you to say to that statement?

A. That statement is true of the Trinidad asphalt.

Q. Under what conditions will it again bond?

A. By drying and heating, or even without heat, just simply by drying, I have found that the mixtures will again bond.

Q. How is it, if it keeps damp?

A. There is no bonding takes place as long as it is kept damp.

Q. Mr. Cushman says, on page 77, that he remembers a place higher up the street, on the south side, he thinks, where Mr.

Dow called his attention to the fact that there was no smell of gas. Do you remember where that place was?

A. It was a place which I have just mentioned a little east of house No. 3416 M street.

Q. Which you have just mentioned in what connection?

A. In answer to one of your questions.

Q. What was the condition of the material in these two places you mention?

A. Which places do you mean?

Q. The one between 31st and 32nd street and the other between 34th and 35th streets?

A. The pavement was disintegrating from the action of water, and no gas was present.

Q. Mr. Richardson testifies, in effect, on page 20, that the principal inspection which he did on this street, was by noting the surface condition of the pavement. You may state  
384 whether or not an accurate idea can be obtained of the action of the disintegration of a pavement, or as to its condition by such an observation?

A. No; an idea cannot be obtained of the condition of a pavement by surface indications. The large majority of this pavement showed no surface indications at all; but on digging into the pavement it was found to be rotted half way through, by water soaking up into the wearing surface.

Q. How much of the pavement of M street, judging from surface indications, would you have said was disintegrating?

A. You might possibly judge 40 per cent of it from surface indications.

Q. Can you state how much of that showed any indication of being affected by gas?

A. I should judge possibly one-third of that showed indications of being affected by gas.

Q. I wish you would take up the first contract and explain what portions of M street covered by that contract you found to be affected by gas alone, if you have not already given it?

A. I have given that.

Q. Did you take any sample from a place on the south side of M street between 31st and 32nd streets, to which Mr. Richards called your attention, that is the place of which you have spoken as being in a dry condition, and covered with a white powder?

A. Yes, I took a sample and showed it to Mr. Richards.

Q. Have you got that sample?

A. I do not know that I can produce that. I may be  
385 able to find it.

Q. Understanding, as I do, that every place, except the two you have mentioned, showed that they were being at-

tacked by gas and water combined, I ask you to locate the places where they were being attacked by gas and water—I mean under the first contract.

A. That would take me half a day, Mr. Thomas. I have measured all of these portions out, and the measurements are given on that paper.

Q. State how you made the inspection and how you made the measurement?

A. The inspection was made while the pavement was being taken up. As the old pavement was removed I examined every bit of it for odor and appearance, and where it smelled of gas I noted down in my notebook where the gas smell began and where it ended. Wherever there was no water present I made a note to that effect. In all the other repairs not noted in this way, water alone was disintegrating the pavement. This I can state, because I saw every piece of the pavement taken up, with the exception, as before stated, of about 70 feet on the north side of M street between 31st and 32nd streets, the east end of this block.

This small bit of pavement was removed in the morning before I arrived on the street, contrary to my orders. My instructions to the gang removing the pavement, were that no paving material should be removed from the street, until after I had been over that place. The measurements which I made of the pavement acted on by gas and water, and acted on by

386 water alone, are made partly from my own notes and partly from the data contained on Mr. Burns' map. I know that map, from personal knowledge, to be a close approximation to the existing conditions.

Q. How did Mr. Burns get the information from which to draw that map, if you know?

A. Right after the repairs were made, Mr. Burns took his force of men over and measured the location and extent of the repairs.

Q. How soon after that was the map drawn?

A. That I cannot say.

Q. How soon did you get it to make these marks on it?

A. I got it probably six months afterwards. I had seen the map, though, during the time Mr. Burns first drew it, or possibly a day or two after he drew it.

Q. Was it accurate, according to your recollection of the conditions?

A. According to my recollection it was accurate.

Q. You have your notebook, have you?

A. Yes.

Q. Showing your memoranda?

A. Yes.



Q. You made them at the time this pavement was taken up?

A. I made that at the time the pavement was taken up.

Q. Can you recollect all these details stated in that notebook, without reference to the notebook itself?

A. No, I cannot.

Q. And the memoranda made in the notebook were made by you?

387 A. Yes, they were.

Q. When did you first visit M street to make a general inspection of this entire pavement?

A. I first visited M street in 1898.

Q. In what month?

A. I think it was in March.

Q. How soon after the removal of the temporary tracks of the Washington and Georgetown Railroad, if at all, and in whose presence?

A. At least within two weeks after the removal of the temporary tracks.

Q. Who was with you?

A. In the presence of Mr. Richards. This date is fixed by a communication from the Engineer Commissioner, in jacket No. 11306-Engineer Department.

Q. What did you observe at that time?

A. I went over the pavement with Mr. Richards, after his complaint that the temporary tracks were injuring the pavement, to ascertain the damage done by the temporary tracks on M street. I found very little damage done to the pavement, and the damage done is stated in the report to the Engineer Commissioner.

Q. Is that report in your handwriting?

A. It is in my handwriting.

Q. Have you got it with you?

A. Yes.

Q. I wish you would refresh your recollection from that report, and state in what condition you found that pavement?

388 A. I found a few depressions, one spike hole about one inch in diameter, and grooves between the brick gutter and the asphalt about one foot long by one inch wide. The defects were too small to call for repairs, and I have stated that I believed they would be effaced in the coming summer.

Q. What is the fact about that; were they or were they not effaced in the coming summer?

A. That I cannot say. They were so small that they were not noticeable.

Q. What was the next time you made a general inspection of this pavement?

A. The next time was January 17th, 1902, at the expiration of the guarantee of the first contract. This inspection was made in the presence of Mr. Richards.

Q. Were any samples taken then?

A. There were a few samples taken but none retained.

Q. In what condition did you then find the pavement?

A. I found it, in some places, showing the action of water and gas and containing illuminating gas, and in other places showing disintegration and rolling from the action of water alone.

Q. How do you fix the date?

A. I fix this date by a communication to the engineer commissioner dated January 23rd, 1902.

Q. Did you make that report; is it in your handwriting?

A. No, it was dictated by me and signed by me.

389 Q. Can you refresh your recollection by looking at that report?

A. Yes; I have it in my hand.

Q. I wish you would please state in what condition you found the pavement to be?

A. I reported that I could find no defects whatever that could be traced, in any way, to the occupation of this pavement by the temporary tracks. Mr. Richards agreed with me that none of the present defects in the pavement were due to the temporary track.

Mr. WORTHINGTON: I object to this witness stating any admissions made by Mr. Richards, on the ground that Mr. Richards is a competent witness, and if he knows anything adverse to the complainant's interest, he should be called and his statements made here by him, and not through another person.

By Mr. THOMAS:

Q. Who was Mr. Richards?

A. Mr. Richards was the superintendent of the Barber Asphalt Paving Company.

Q. Refreshing your recollection from your report, what do you say Mr. Richards stated to you respecting the condition of the pavement, with reference to the railroad tracks?

Mr. WORTHINGTON: I renew my objection, and give notice I will move to strike out any questions and answers on this line, referring to statements made by Mr. Richards.

A. Well, Mr. Richards agreed with me that none of the present defects in the pavement were due to the temporary tracks; but he believed that inasmuch as the District allowed the pavement to be used for a purpose that was liable to weaken it, such a procedure on the part of the  
390 14—1728A

District relieved them from responsibility for the maintenance of the pavement. From the superficial examination that I made of this pavement at that time I believed that the greater part should be resurfaced, as it was rotting badly from illuminating gas and water soaking up through the concrete base.

The further taking of these depositions was thereupon adjourned until Saturday, February 25th, 1905, at 1 o'clock p. m.

391 WASHINGTON, D. C., *February 25, 1905*—1 o'clock p. m.

Met pursuant to adjournment at the office of A. S. WORTHINGTON, Columbian Law Building, Washington, D. C.

Present on behalf of the complainant, Mr. WORTHINGTON.

Present on behalf of the defendant, Mr. THOMAS.

Whereupon, ALLEN W. DOW, resumed the stand for further direct examination,

By Mr. THOMAS:

Q. What can you say about the replacing of the pavement on M street, mentioned in these contracts, as to whether you replaced a part or all of it?

A. We replaced only a portion of the pavement on M street.

Q. What was the kind of pavement you left there, which was not replaced?

A. In going over the street, we tried to pick out that which we considered sufficiently bad to replace. I know that we took out very little pavement that was not rotting, and only in cases where the pavement was so out of shape that it showed defects on the surface. We left in a great deal of pavement that was possibly rotted. There were a number of places where I spent a great deal of time with the assistant Engineer Commissioner,

deciding whether the pavement was sufficiently bad to  
392 be removed or not, and to my personal knowledge we left in many yards that were showing signs of disintegration. We tried to be as fair as possible in the matter.

Q. Speaking of the temporary tracks, were you there while these tracks were being adjusted, at anytime?

A. Yes; I was there on several occasions. I remember of their sliding down towards the gutter, so that the steps of the cars would knock against the curbstone; and I remember gangs of men pushing those tracks back into the roadway. At no time when I was there did I see any spikes being driven; and I know I was there several times.

Q. Did the temporary tracks injure this pavement?

A. I have been unable to see any defects that could be traced to the temporary tracks.

Q. I have asked you respecting your inspections of this pavement, covering a period embracing January 23rd, 1902. I will ask you when, thereafter, was the next time you made a general examination of the pavements. I mean the pavements embraced in the two contracts.

A. In the fall of 1902 an examination was made of the pavement under the first contract. At this time the pavement was plugged and tested in various places, when I was in company with Mr. Reilly, the superintendent of repairs.

Q. How was it plugged?

A. By cutting small pieces out of it and examining the condition of the pavement. I should say about 100 samples were taken at that time, from various portions of the pavement.

Q. How close together?

A. At various distances. Where there was any disintegration showing in the pavement or any unevenness, samples were taken until we came back to good material. The samples were taken at different distances.

Q. How far apart, on an average?

A. Some may have been seventy feet apart, and others may have been only one or two feet apart. I might say further, in reference to these samples, that where the pavement was noted to be in a very bad condition samples would not be taken, but we would try to locate the end of this bad condition sufficiently to get an estimate as to what portion of the pavement should be removed.

Q. Between what streets was it that you made this inspection at this time, in the fall of 1902?

A. Between 31st and 32nd streets, on the south side of the way; and between 33rd and 36th streets on both sides of the way. The date of this inspection is fixed because I know it was just shortly before the repairs were started on that contract, and they were started in the late fall of 1902.

Q. When was the next time you made a general inspection of the pavement, and under what contract?

A. The next time was while we were repairing under the first contract, in the fall of 1902. At that time I endeavored to see every portion of the pavement removed, and smelled the pavement every few feet, and made official examinations of the samples, before they were taken away from the street.

Q. What did that examination disclose?

394 A. And in a great many cases where I considered it necessary, I took samples.

Q. What did that examination disclose?

A. That examination disclosed the condition which I have previously described, on the map.

Q. When was the next time after that, that you made a general inspection of the pavement, and under what contract?

A. The next examination was made on contract numbered 2, and was in March, 1903.

Q. What did you do?

A. At this time I went over the street, accompanied by a laborer, and by plugging the pavement at intervals I got a rough idea of the repairs that would be necessary. The date of this examination is fixed by a communication to the Engineer Commissioner dated March 19, 1903.

Q. When before that date was the inspection made?

A. Just shortly before it, in March.

Q. What was the then existing condition of the pavement?

A. It was out of repair. The guarantee had just expired, and the pavement was out of shape, in a great many places.

Q. From what?

A. In nearly every case I found the pavement disintegrating from the action of water, and in some few cases from the combined action of water and gas.

Q. When was your next visit for a general inspection?

A. My next visit for general inspection was in the  
395 fall of 1903. That was the time the repairs were made on the second contract.

Q. What did you do?

A. In this case I did exactly as I did while the repairs were being made on the first contract. I examined the pavement very carefully.

Q. Do you recall that any portion of that pavement was then removed without your having personally examined it?

A. No, there was not.

Q. On what dates were the pavements involved in the two contracts concerned in this suit completed?

A. The pavement from 32nd to 36th streets, on both sides was completed January 5th, 1897. The pavement between 31st and 32nd, on the south side of the street, was finished June 16th, 1897. The pavement on the north side from 31st street to 32nd street, was completed September 29th, 1897. The pavement between 32nd and 33rd streets, on both sides of the street, were completed January 5th, 1898.

Q. Mr. Richards, at page 96 of his testimony, in answer to the inquiry: "Do you know whether or not, when the temporary tracks were taken up, and the spikes withdrawn, anything was done in the way of filling up the holes," said: "My recollection is that the District sent their repair force through there, cutting out what they saw, and what they could find, and renewed it."

What have you to say about this statement?

A. In the first place, when Mr. Richards and myself examined the pavement in the early spring of 1898, which was shortly after the laying of the temporary track, I remember of  
396 seeing on one or two places the dirt that had accumulated under the track, and from this I believed that the pavements were not touched, as too short a time had elapsed. Besides this, I have looked up the records of the office and I can find no mention of any repairs being made on M street by the District between the removal of the temporary track, and the visit of Mr. Richards and myself.

Q. In what office would that record be?

A. It would be in my office.

Q. Do you keep a record of repairs that are made on the streets?

A. I keep a record of the location, and of where repairs are being made.

Q. And of the time.

A. Yes; and of the time. I keep a record where repairs are of any extent, like they would be along several blocks. A gang might go out and make a little cut at one place on the street, and there would be no record kept of that.

Q. From an examination of these records in your office you do not find that anything was done there at the time mentioned by Mr. Richards.

A. I do not find that anything was done there.

Q. What have you to say in reference to the percentage of the pavement which was injured by gas combined with water?

A. In what way do you mean?

Q. Estimating it on a percentage basis; in other words I want to see whether you can give us a statement, approximately, by percentage, of the injury to the pavements  
397 embraced in these two contracts by gas alone, the injury to such pavements by the combined action of gas and water, and the injury to such pavements by water alone?

A. All of that data is measured out on the map. I may say that the amount damaged by gas and water was possibly forty per cent. of the entire pavement replaced. There was forty per cent. damaged by water and gas, and sixty per cent. damaged by water alone; although I think that is a very liberal estimate.

Q. A liberal estimate of what?

A. A liberal estimate of the amount damaged by gas and water.

Q. Will you locate the places under this first contract which were damaged by gas and water combined, and by water?

A. You mean locate them on the map?

Q. On the map.

Mr. WORTHINGTON: I object to the use of this map, first, on the ground that it is not shown to be a proper basis of testimony and, in the second place, because it is not a proper basis.

By Mr. THOMAS:

Q. I wish you would examine the map and give the measurements desired.

A. On the south side of M street from 31st to 32nd streets, the entire pavement was replaced, with the exception of a strip commencing about 198 feet west of the west curb line of 31st street, and extending to the east car track of the 32nd street railroad. This strip averaged, in width, about five feet. All of this pavement, with the exception of about one square yard, which I have previously mentioned, showed the disintegrating action of water. I may say here, that about seventy feet on this side of the street, beginning at the west curb of 31st street, was removed before I could inspect it. My own knowledge of the condition of this portion that was removed was derived from seeing that the concrete base was damp when I arrived on the street. I did, on a previous occasion, make attest here about the middle of the roadway and about eight feet west of the west curb line of 31st street. This test here showed the pavement at that point to be rotting from water and gave no evidence at all of gas. There was a patch damaged by gas and water, commencing about 120 feet west of the west curb line and extending west about 25 feet. This place smelled strongest of gas near the curb, with a diminishing odor as you proceeded to the track. The base under that patch was wet, with the exception of about one square yard, as to which I have previously testified. Another place on this block, commencing about 318 feet west of the west curb line of 31st street and extending west for about 14 feet, smelled of gas. There was but little odor of gas in this strip, and considerable of the pavement that smelt of gas was in too good condition to be replaced. I found no other places on the south side of M street between 31st and 32nd streets that were attacked by gas. All of the rest of the pavement that was replaced showed strong evidence of being rotted by water, the concrete, in all cases, being wet.

On the south side of M street between 33rd and 34th streets, for about 415 feet, the pavement was in fairly good condition, only a few minor repairs being necessary where the roadway was somewhat out of shape.

Beginning at 415 feet west of the west curb line of 33rd street

and extending to about ten feet west of the east curb line of 34th street, an irregular patch of the average width of ten feet in the center of the roadway, was removed. All this patch showed disintegration by water.

Beginning at about 440 feet west of the west curb line of 33rd street the presence of gas was detected. This smell of gas continued in the pavement for the rest of the patch, that is to ten feet west of the east curb line of 34th street. The strongest odor of gas was about five feet east of the west curb line of 34th street.

On the north side of M street between 33rd and 34th streets, the pavement was but little repaired up to about 395 feet west of the west curb line of 33rd street.

Beginning at 395 feet west of the west curb line of 33rd street there was a narrow strip along the brick gutter about four feet wide and 48 feet long that was disintegrating from water alone, giving no evidence of the presence of illuminating gas.

Commencing about 445 feet west of the west curb line of 33rd street and extending to about 50 feet west of the west curb line of 34th street, there was a patch disintegrating from the action of gas and water, which was replaced. This patch was on an average of ten feet in width and irregular in shape.

400 On the north side of M street from 34th to 36th streets, and beginning at about 65 feet west of the west curb line of 34th street, there was an irregular patch very near the width of the roadway, extending to about 160 feet west of the west curb line of 34th street, which showed the disintegrating action of water and gas.

Beginning at about 190 feet west of the west curb line of 34th street and extending to about 257 feet, there was a patch very nearly the width of the road that was disintegrating from water and gas.

From 257 feet west of the west curb line of 34th street to about 278 feet west of the west curb line of 34th street there was a patch nearly the width of the roadway that was being disintegrated by water along.

From 278 feet west of the west curb line of 34th street to about 365 feet west of the west curb line of 34th street there was a patch nearly the width of the roadway that was disintegrating from the action of water and gas.

From about 410 feet west of the west curb line of 34th street, and extending west to 480 feet west of the west curb line of 34th street there was a patch that was disintegrating from the action of gas and water.

On the south side of M street, between 34th and 36th streets,



there was no place that showed disintegration from water and gas combined.

Beginning at about fifty feet west of the west curb line of 34th street and extending to about 153 feet west of the  
401 west curb line of 34th street, there was a patch that showed the disintegrating action of water. This patch was practically the width of the roadway.

There was practically no repairs on the remaining parts of this block, with the exception of a long narrow patch beginning about 625 feet west of the west curb line of 34th street and extending to the end of the pavement, about 715 feet west of the west curb line of 34th street.

Q. Please state what the result was as to the second contract?

A. There was one small portion of this pavement that was about three feet east of the east track of the 32nd street railroad, and two feet north of the north track of the M street railroad, that was taken up, that contained illuminating gas alone. It consisted of a small patch possibly two feet square. There was no other portion of this pavement that was replaced which did not show the presence of water. The portions of this pavement that were replaced, and for what cause, are as follows:

On the north side of M street, beginning at 31st street, there was a portion of the pavement extending for about 100 feet, in which several large irregular patches were made. No odor of gas was perceptible in them, and in all cases it showed the presence of water disintegration.

From 100 feet west of the west curb line of 31st street, extending to the east car track of 32nd street, practically the entire roadway was replaced. All of this was being rotted  
402 by water. Evidence of gas was found in a semi-circular patch commencing 190 feet west of the west curb line of 31st street and extending to about 336 feet west of the west curb line of 31st street. The odor of gas was strongest near the gutter and was hardly perceptible near the track.

Another patch, beginning at 385 feet west of the west curb line of 31st street and extending to about 310 feet west of the west curb line of 31st street, showed evidence of containing gas. The odor of gas was strongest near the gutter and diminished to a very faint odor near the track.

Beginning at about 410 feet west of the west curb line of 31st street and extending to the east rail of the 32nd street railroad, there was a patch which smelled strongly of illuminating gas, the smell being strongest near the intersection of the north track on M street and the east track on 32nd street. The odor diminished as it went east, until it became hardly perceptible. On the north side of M street between 32nd and 33rd streets

there was an irregular patch of pavement replaced, extending from about three feet west of the west rail on 32nd street to 340 feet west of the west curb line of 32nd street. This patch varied from about three feet to eight feet in width. I should consider that the average width was about six feet. All of the pavement replaced from this patch showed indications of being rotted by water.

The presence of gas was noted in a portion of this patch extending from the west curb line of 32nd street west about 35 feet. Another portion of this patch showing the presence of illuminating gas, commenced about 63 feet west 403 of the west curb line of 32nd street and extended to about 75 feet west of the west curb line of 32nd street.

Another portion of this patch showing evidence of the presence of illuminating gas commenced about 85 feet west of the west curb line of 32nd street and extended to about 110 feet west of the west curb line of 32nd street.

The next patch of this pavement replaced began at about 350 feet west of the west curb line of 32nd street, and extended to about 410 feet west of the west curb line of 32nd street. This patch varied from four feet to 10 feet in width, the average being about 6 feet. All of the pavement in this patch showed evidence of disintegration from water action, and no illuminating gas was detected.

Another patch of this pavement was replaced, beginning at about 412 feet west of the west curb line of 32nd street and extending west to about 570 feet west of the west curb line of 32nd street. This patch varied from about five feet to ten feet in width, the average being about eight feet. This entire patch showed evidence of the action of water, but did not give any evidence of containing illuminating gas.

From this point 570 feet west of the west curb line of 32nd street, to 33rd street, there were several small repair patches made. One of these, at the northwest corner of Potomac street, showed the presence of disintegration from water and gas, near the car track. The portion of this patch near the curb smelled strongly of illuminating gas, but was of good thickness, and was only taken up because it was out of shape, from being badly repaired at some former date.

404 On the south side of M street from 32nd to 33rd streets, commencing at 32nd street, there were but a few minor repairs made up to a point about 120 feet west of the west curb line of 32nd street.

Beginning at this point there was an irregular patch along the center of the roadway that was replaced, extending to about 170 feet west of the west curb line of 32nd street. This patch varied from five to nine feet in width, with an average width

of about seven feet. The material taken from here showed evidence of disintegration from the action of water entering through the concrete, but no evidence of containing illuminating gas.

Beginning at about 167 feet west of the west curb line of 32nd street there was an irregular patch extending to about 232 feet west of the west curb line of 32nd street. This patch occupied a position near the railroad track, and varied in width from about two feet to 13 feet. The pavement here showed evidence of being disintegrated from the action of water entering through the concrete, but gave no evidence of containing illuminating gas.

The next patch began at 265 feet west of the west curb line of 32nd street and extended to about 302 feet west of the west curb line of 32nd street. This patch varied from about 16 feet to 4 feet in width, with an average width of about 11 feet. This entire patch showed evidence of being disintegrated by the action of water entering through the concrete. This patch showed evidence of containing illuminating gas from about 270 feet west of the west curb line of 32nd street.

405 The next important patch began at 340 feet west of the west curb line of 32nd street and extended to about 383 feet west of the west curb line of 32nd street. This patch was adjacent to the car track, and varied from 14 feet to 3 feet in width, being of an average width of 10 feet. The pavement from this patch showed evidence of being disintegrated by water action, but no gas was present.

Beginning at about 395 feet west of the west curb line of 32nd street and extending west to about 455 feet west of the west curb line of 32nd street, there was a patch removed varying from 6 feet to 1 foot in width, with an average width of 5 feet. The pavement from this patch showed disintegration from water. There was no gas present.

From about 463 feet west of the west curb line of 32nd street extending to about 502 feet west of the west curb line of 32nd street there was an irregular patch varying from 3 feet to about 9 feet in width, with an average of about 6 feet. The pavement from this patch showed the disintegrating action of water coming up through the concrete. It did not contain any illuminating gas.

Beginning at about 508 feet west of the west curb line of 32nd street and extending to about 590 feet west of the west curb line of 32nd street there was a patch of pavement removed varying from about 4 feet to 12 feet in width, with an average width of 8 feet. The pavement from this patch showed evidence of being disintegrated from the action of water coming up through the concrete. It contained no gas.

From 590 feet west of the west curb line of 32nd street to about 792 feet west of the west curb line of 32nd street the pavement was repaired in several medium size patches. No gas was detected in any of these patches, and all of them showed disintegration of the pavement from the action of water.

From 792 feet west of the west curb line of 32nd street to about 902 feet west of the west curb line of 32nd street, an irregular patch of pavement was removed, varying from about 16 feet to 5 feet in width, with an average width of about 9 feet. This pavement showed evidence of the disintegration from the action of water coming up through the concrete, and contained no gas.

Q. You have spoken of memoranda which you made at the time of your inspection of this pavement. Have you got that memorandum book here?

A. Yes, I have; but I am not positive that has all of the memoranda in it, which I made at that time.

Q. Does it contain some of the memoranda?

A. It contains a majority of them. The reason I say it may not contain all is because there was one day that I had my stenographer on the street, and he may have taken shorthand notes in his notebook, and written them up on the typewriter afterwards.

Q. This contains, however, the majority of defects in the pavements, and notes of it?

A. Yes.

Q. Made at the time by you?

A. Made at the time by me.

407 Q. Have you got that book?

A. Yes, I have.

Mr. THOMAS: I now tender this book to counsel and offer it in evidence. I will produce the original at the hearing if desired.

It is agreed by and between counsel that the witness may mark the places in the book referred to, and that the stenographer may copy them in the record, to be used in place of the original.

The above mentioned memoranda are marked Exhibit Dow No. —, and are herewith filed.

Mr. THOMAS: I now offer in evidence the maps referred to by the witness, and will follow up his testimony regarding the making of those maps by the testimony of Mr. Burns.

Mr. WORTHINGTON: As the matter stands I object to these

maps, and each of them, upon the ground that it has not been sufficiently shown that they are reliable and correct.

Cros-examination.

By Mr. WORTHINGTON:

Q. When did you make your first inspection of the pavement between 31st and 36th streets, on M, or any part of it, and make a record of it?

A. I made a record of it, and that record is on file. I am a very poor hand at remembering dates. Can I refer to some notes on that subject?

Q. Certainly.

408 A. It was about March, 1898.

Q. What part of the street did you then inspect?

A. At that time I went over the street with Mr. Richards to determine the amount of damage resulting from the use of the pavement by the temporary tracks.

Q. Had your attention been called particularly to this pavement on M street, before that?

A. No, it had not.

Q. And that inspection was made with reference to injury by the temporary car tracks?

A. Yes; the temporary tracks alone.

Q. When did you next make any inspection of that portion of M street?

A. Of which I made a record, do you mean?

Q. Yes.

A. That was in January, 1902, at the expiration of the guarantee in the first contract.

Q. When did you make the first inspection of this street, when you did not make any record of what you saw?

A. About two or three years before the expiration of the guarantee the pavement began to get out of shape in a few places, and I would go over there once in a while and take up a piece to watch the disintegration. I cannot state the dates exactly. It showed that there was a great deal of water in it.

Q. I wish you would fix, as nearly as you can, the date when you began to observe the pavement in that way.

A. I could not fix it any closer than to say it was a little over two years before the expiration of the guarantee.

409 Q. About two years before the expiration of the first guarantee?

A. Of the first guarantee.

Q. That would have been in the year 1900 some time?

A. Yes.

Q. Before that your attention had not been drawn to the pavement, particularly, at all?

A. No, it had not.

Q. You had not examined it with reference to water or gas or anything else?

A. No.

Q. Do I understand then that as to most of the visits which you made to the pavement, after your attention was drawn to the fact that it was disintegrating, you made no notes?

A. No; I made no notes.

Q. Then, as to the location of the bad spots, it is simply a matter of recollection with you?

A. In one case I can recollect within ten feet of the exact spot I examined there. In other cases they were scattered about along the south side of M street.

Q. In performing your duty as inspector, did you, during these years, go around over the asphalt pavements and look at them, to see how they were getting along?

A. Yes; I always do.

Q. Was it in that way your attention was first drawn to this M street pavement?

A. Yes, it was.

Q. How long did you continue to make a study of this  
410 M street pavement, after your attention was drawn to the fact that it was not holding out well?

A. Up to the time of its removal.

Q. About how frequent were your visits?

A. In two years I surely made over ten visits; but I cannot say any closer than that.

Q. You would say something like ten visits there in the years 1900 and 1901?

A. Yes, sir.

Q. The last two years of the guarantee period on the first contract.

A. Yes.

Q. When was your attention first drawn to the fact that illuminating gas would rot asphalt pavements?

A. I might say before the year 1893.

Q. Was your attention called to the matter then theoretically or practically?

A. It depends on what you call theoretical and practical. I knew that pavements were supposed to absorb illuminating gas, and that when gas was found in the pavements to a great extent they would be found to be disintegrating.

Q. Do you mean pavements in this city?

A. No; that was in New York.

Q. When was it you came to Washington?

A. In 1894.

Q. What, in a general way, was your observation about illuminating gas injuriously affecting asphalt pavements in New York?

411 A. There was one pavement—I do not remember where it was—that I saw, which was cracking and smelling of illuminating gas. I cannot tell when it was; but I know it was before 1893.

Q. That is just one instance.

A. That is one instance I know of. I may have seen others.

Q. Were those cracks parallel cracks such as have been spoken of in this case?

A. Yes.

Q. When was your attention first drawn to the fact that illuminating gas was injuring or might injure asphalt pavements in this city?

A. In answering this question, understand that I am stating that illuminating gas alone will not injure a pavement. I say that illuminating gas softens the asphalt, which allows a much more rapid action of water.

Q. That is sufficient for my purposes. When did you first find out that illuminating gas would have that effect, by whatever name you may call it.

A. In 1894.

Q. And in what street was the trouble then?

A. On G street. My attention was called to a place that smelled badly of illuminating gas, and we called upon the gas company to look into it and repair the main in this pavement.

Q. That was on G street between what streets?

A. I could not tell you without referring to a report which I have on the matter.

412 Q. You have not the report here?

A. No; but it was at Third and G streets, northwest.

Q. You speak of a report. Is that a printed report?

A. No; it is a report to the Engineer Commissioner on the subject.

Q. Is that on file?

A. Yes; I think it is.

Q. The gas company was called upon to repair the pipe?

A. To search for the leak.

Q. To find the leak?

A. Yes.

Q. Did the gas company do it?

A. No; we took up the main for a block and a half, and all the service pipes, and we could find no leak at all.

Q. Did the escape of gas there continue?

A. I cannot say. The gas remained in the soil for a long time afterwards, because I know the pavement was affected in new places after that.

Q. In that vicinity?

A. Yes, in that vicinity.

Q. Is there an asphalt pavement there now?

A. Yes.

Q. Is that being affected by gas?

A. I am not certain about that. I have not seen it for a number of years.

Q. You have been the inspector of pavements all this time?

413 A. Yes; but I cannot look at every pavement in the city. In fact, I may have been over that pavement, but I cannot tell you the exact condition existing now, from my memory.

Q. Then, although you have been inspector of pavements all the time, you have not taken sufficient interest in that circumstance to follow it up, and see whether there was any gas there which continued to injure your pavement?

A. Yes, I have, because I know I visited it in the past year; but I do not remember the condition of it now.

Q. You had no doubt that the injury to that pavement was caused by the escape of illuminating gas; had you?

A. It was injured in the way I have referred to, by the gas softening the asphalt and allowing the water to rise. Now that you refresh my memory a little on the matter I begin to remember that I noticed the signs of gas were gradually disappearing on that street.

Q. Was the demand which was made upon the gas company, at that time, to take some action in regard to the matter, in writing?

A. I believe it was.

Q. It should be on file then?

A. Yes.

Q. What is the next instance you can remember, in your experience here, of an asphalt pavement being injured by illuminating gas, in the way in which you have described?

A. I could not say for certain about the next instance,  
414 but I remember a number of instances.

Q. I wish you would state every instance you can recall, omitting, for the time being the M street pavement involved in this case.

A. There was one on I street between 5th and 9th streets, northwest. On Pennsylvania Avenue there were one or two small places that were noted as smelling of gas. I cannot exactly tell the location of them, but they were somewhere along



about 8th or 9th street. There was a street in the southwest, that I cannot remember; but I have a record of it. The pavement in front of the Arlington Hotel is being affected by gas. There are two Bermudez pavements that I have noticed being affected by gas, one between 8th and 9th streets on D street, northwest, and one on D street between 14th and 15th streets northwest. There is also one on 11th street, just north of Pennsylvania Avenue, in front of the Star office, Judd & Detweiler's and the lunch room there.

Q. Are those all you can now recall, leaving out for the present the M street pavement?

A. That is all of them I remember. There have been a number in other localities that I cannot place; but there has no very bad disintegration taken place.

Q. These are the most important ones?

A. Yes.

Q. First as to the one on I street between 5th and 9th streets, northwest. When did you discover that that seemed to be injuriously affected through the action of gas and water?

415 A. I cannot remember that at all. It has been quite a while ago.

Q. What was the extent of that injury?

A. Between 5th and 6th streets, as I remember it, it seemed to be general all over the entire roadway. Between 6th and 7th streets it appeared to run along the north side of the roadway; and between 7th and 8th and 9th streets it was not so bad. I think it only occurred in a few spots there.

Q. Was this several years ago?

A. Yes.

Q. Would you say it was as much as five years ago?

A. More than that.

Q. What was done, if anything, to remedy that trouble on I street between 6th and 9th streets?

A. I cannot remember very well, but I think the gas company was notified, and I think they refused to look for any leak.

Q. Then, according to your recollection, nothing was done about it?

A. According to my recollection there was nothing done about it.

Q. What became of the pavement?

A. The pavement was repaired.

Q. At whose expense?

Mr. THOMAS: I object to the question as to at whose expense the pavement was repaired.

416 A. At the expense of the District, as I understand. I am not certain about that. This pavement was not a guaranteed pavement.

By Mr. WORTHINGTON:

Q. Can you tell us whether there was any correspondence between the Commissioners' Office or the Engineer Commissioner's Office and the gas company, about that pavement?

A. I believe there was. There was so much communication about it that I do not know whether the gas company came into it or not. I am pretty sure they did, though, because the health officer complained of stagnant water standing in the street, and the health officer went to the engineer department about it.

Q. The stagnant water was from pools made in the pavement?

A. Yes.

Q. As to the pavement on 11th street just north of Pennsylvania Avenue—when was it that your attention was called to the fact that that pavement seemed to be injured by gas and water?

A. I have known it for about five years; but I believe action was taken on it three years ago. The five years is merely a guess; I am not positive about that.

Q. That is as near as you can recollect it, approximately?

A. Yes.

Q. After you had discovered, as you supposed, that there was gas escaping there which injured the pavement, the matter was allowed to run on for two years?

A. Yes.

Q. Then what was done?

417 A. We notified the gas company that we expected to make a test case out of the matter.

Q. What was the result?

A. The result was that it was found that the blame was put upon the Water Department, because it was found that if there was a leak at all it was because the water department had broken the gas main.

Q. Was the leak stopped?

A. Yes; the leak was stopped. It was a break made a few years before, and the gas showed in the pavement. It was all that time getting out of the soil.

Q. You had no trouble in connecting the trouble with the pavement with that leak, had you?

A. No.

Q. And the leak was done away with?

A. Yes.

Q. And since that time the pavement has acted normally, has it?

A. Yes; except that it is going to pieces in several places. That is likely because of the gas still coming out of the soil.

Q. Now as to the place in front of the Arlington Hotel. You say that is now affected by gas?

A. Yes.

Q. How long have you observed that?

A. I can tell you exactly by the record.

Q. Give it to us approximately.

A. It has been quite a while ago. If you remember  
418 when H street was paved between 15th street and Lafayette Place, it was while they were paving that street that I first noticed it was being acted on.

Q. Give us your best idea about the length of time?

A. I can say six years ago. I can say this about that pavement. It has a very thick bituminous base, that is impervious to water from the soil, and while the cracks are very bad in the pavement, yet the pavement does not disintegrate. It remains in this cracked condition.

Q. Has anything ever been done towards ascertaining the source of the escape of gas there?

A. Not that I know of.

Q. Do you know what kind of asphalt was used in laying that pavement?

A. I do not.

Q. Or what company laid it?

A. I think it was Cranford & Hoffman; but I am not positive about that.

Q. Is the extent of the injurious effect of the disintegration of asphalt pavements from the action of water or of gas and water combined, proportionate at all to the amount of traffic on the street?

A. Yes.

Q. The same condition on a street where there is a great deal of heavy traffic will bring a pavement to pieces much more quickly than where there is little traffic?

A. Yes; much more quickly.

Q. Is M street, in Georgetown, a street where the  
419 traffic is pretty heavy?

A. Yes; it is quite heavy for this city.

Q. You have already told us about the place on D street between 8th and 9th, and the place on D street between 14th and 15th, in your direct examination?

A. Yes.

Q. Can you remember where the street in the southwest is, which seems to be injuriously affected by gas?

A. I can't remember that at all.

Q. Were these defective places large or small?

A. It was a marked defect. It smelled very strongly of gas. I remember the place in the southwest, because as a slab of the pavement was lifted up I touched it with a match and it blew up and burned the hair off my hand.

Q. Was anything done about remedying that trouble?

A. They dug down to the gas main and searched the various joints in the neighborhood, but they could find no leaks.

Q. Who did that?

A. The gas company.

Q. Then, in that case, the District called upon the gas company to take action?

A. Yes.

Q. Is the gas still escaping there?

A. That I cannot say, because the pavement has been replaced?

Q. How long ago?

A. That was quite a while ago. It was shortly after  
420 the gas was noticed there.

Q. Does your experience with that and other similar cases, indicate to you or lead you to think, that illuminating gas may travel a long ways from the place where it escapes from the pipes, and damage a pavement?

A. Yes; I should think it would.

Q. Was there any possible explanation of the presence of illuminating gas in this place in the southwest, to which you refer, except that it escaped in some way from the pipes of the Washington Gas Light Company?

A. No, there was not.

Q. When you say that they could not find the place where the leak was, you mean, of course, that that is what they reported?

A. No; I was present when they looked for it.

Q. Were you present during the whole time of the excavation?

A. No; but I was present when the pipe was exposed.

Q. How much of it did they expose?

A. That I cannot remember. I have seen so many pipes exposed in the city that I could not place them.

Q. You speak of a few small places on Pennsylvania Avenue between 8th and 9th streets. When did you observe that there was trouble there coming from gas and water?

A. That I cannot remember.

Q. Several years ago?

A. Yes; several years ago. It must have been five or six years ago. Major Powell was in office then.

Q. Was anything done towards remedying the trouble  
421 there?

A. We dug into the gas pipe joints at several places, but we could find no leaks at all.

Q. When you say "we", whom do you mean?

A. The gas company did it, in my presence.

Q. Were you there during the whole period when the pipes were exposed?

A. I cannot say positively that I was. I saw the joints and I saw the men make the fire test and the soapsuds test.

Q. They found no leak at the place that was exposed?

A. No.

Q. How much of the pipe did they expose?

A. They exposed the joint, and possibly two feet on each side of the joint. They exposed a number of joints. I cannot remember how many, but possibly ten.

Q. This was several years ago?

A. Yes.

Q. Is the gas still escaping there and doing damage?

A. I have not noticed any.

Q. You have stated, in your direct examination, that gas is escaping all the time. You do not mean that it is escaping in such quantities as to do any material or noticeable damage to the pavements?

A. No; absolutely not.

Q. Do you not mean that it is escaping in the same way it is escaping in all our houses, where we have gas?

A. Yes.

422 Q. So that it is infinitesimal, just the ordinary leakage?

A. The ordinary leakage. Of course there may be cases where there are larger leaks than those—leaks which occur in the street from settlement of the pipes.

Q. Is there any case within your knowledge in this city where the injury has been traced directly to escaping gas from the pipes of the Washington Gas Light Company, except the instance you have given, in front of the Star Office on 11th street?

A. No; not in my experience at all. I know there have been cases, of which you can find the record, where there has been a bad escape of gas, but the gas company has immediately closed it and repaired it.

Q. Has repaired what?

A. Has repaired the leaks, and they are not brought to my attention, because the pavement is not affected.

Q. Would you think it possible for a serious leak to occur

in an asphalt pavement, without having some damage done, if there was water present?

A. That would depend upon the asphalt used.

Q. I understand that you make a distinction. Let us say that this is Trinidad asphalt.

A. No; I do not think it could occur without damage to the pavement.

Q. Do you know whether the Washington Gas Light Company was called upon, at any time, to take any action with reference to the gas which you found during so long a time was escaping on M street between 32nd and 36th streets, 423 at different places?

A. Not that I know of.

Q. Do you know why they were not?

Mr. THOMAS: I object to any inquiry about specific instances, other than the one being considered in this case.

By Mr. WORTHINGTON:

Q. I am inquiring about M street between 31st and 36th, since the year 1897.

A. The gas was not noticed there until 1902. The gas company may have made excavations there.

Q. The gas was not noticed there until 1902?

A. Not until 1902.

Q. It has been a good while since 1902. So far as you know they have not been asked to do anything with reference to this escape of gas?

A. Not that I know of.

Q. Is there any place in the city where you have found such strong evidence of gas, over such a large place, as now exists on M street between 31st and 36th streets?

A. Yes; I street was much worse than M street, and on 3rd and G northwest, they had more gas than on M street.

Q. Do you mean it was worse in extent of surface?

A. Worse in the odor of gas. It contained more gas and I also mean it was worse in the extent of pavement affected.

Q. Was there any case more serious in extent, except those two?

A. Not that I can recall. I would like to modify that 424 answer somewhat. The reason why we know the extent of it now is because such a careful examination was made of the pavement. I believe if a careful examination was made of any pavement we would find small places where gas is escaping into the pavement.

Q. There have been a good many asphalt pavements taken up and replaced in Washington, in your time?

A. Yes; and I have noticed spots of gas in numbers of them.

Q. In all of them there is more or less moisture I suppose?

A. Yes, sir.

Q. I think you have already testified that these pavements are necessarily exposed to the influence of water, rain, and otherwise?

A. Yes.

Q. And that there is more or less water in all of them?

A. Yes.

Q. Have you here the report which you made, from which you read the other day, in regard to the gas on M street?

A. Yes. (The witness produces the report).

The further taking of these depositions was thereupon adjourned until Wednesday, March 1st, 1905, at 2.30 o'clock p. m.

425 WASHINGTON, D. C., *March* 1, 1905—3 o'clock p. m.

Met pursuant to adjournment at the office of A. S. WORTHINGTON, Columbian Law Building, Washington, D. C.

Present on behalf of the complainant, Mr. WORTHINGTON.

Present on behalf of the defendant, Mr. THOMAS.

Whereupon, ALLEN W. DOW, resumed the stand for further cross-examination.

By Mr. WORTHINGTON:

Q. Mr. Dow, I wish you would fix the date when you and Mr. Richards examined this M street pavement with reference to possible injury from the use of the temporary cartracks.

A. Which visit do you refer to?

Q. You have testified that you went to this street with Mr. Richards to make an examination of it with reference to determining whether it had been injured at all by the temporary street car tracks.

A. There were two visits.

Q. When was the first one?

A. The first one was, I believe, sometime in March, 1898. I fix this date by a report of Captain Lansing H. Beach, after having received my report on the conditions which I found in the street. By some error my report was not dated. Another way in which I fix this date is that the temporary tracks  
426 were laid down about the middle of January, 1898, and they remained down from six weeks to two months, and Mr. Richards and I examined the pavement immediately after they were taken up.

Q. When was it that you and he made the second examination, with reference to injury by the street car tracks?

A. January 17th, 1902.

Q. I understand you to testify that on either one or both of these occasions Mr. Richards agreed with you that the temporary street car tracks had not injured the pavement?

A. Yes, sir.

Q. Was it on one of the trips or on both?

A. I can only remember that from what I have written in the report. (Referring to paper) I cannot say whether he agreed with me on that on the first visit; but on the second visit he said he could not—may I read what he said? I have it here in the report on that subject. I do not remember at all. I only know what these reports say on that subject.

Q. Was it your own report made at the time?

A. My own report made at the time.

Q. You have no recollection on the subject now, at all?

A. I have a recollection that on one occasion Mr. Richards said that he could not see any defects that the railroad company could be blamed for. I do not remember exactly his words, but I repeated his words in the report at that  
427 time.

Q. From looking at the report would you say that that occurred at the second visit, in January, 1902?

A. May I refer to this report?

Q. Certainly.

A. Yes, that occurred on my second visit—if that is the second visit, in January, 1902.

Q. You state that the first visit was in 1898?

A. I am not positive. There might have been a visit between those. You see I do not carry those dates in my head.

Q. You have said that you never saw any spikes driven in that pavement to hold these temporary tracks down. Do you mean to say that the tracks were not spiked down?

A. I cannot say positively that they were not spiked down, but there were a number of places where they were not spiked down. I cannot say that they were not spiked down in any place, but there were a number of places where I am positive they were not spiked down.

Q. When you say "a number of places", of what extent were those places? How much of the length of the track did they cover?

A. I only remember seeing sections of the track slip down to the gutter, and seeing them push the tracks up when the next car came along, and they were not using those spikes at all after the track was in place.

Q. So the question recurs: For what length of that track



do you say there were no spikes, according to your ob-  
428 servation?

A. I have seen at least 25 feet of track without any spikes.

Q. Do you think if the track had been spiked down that would not have been injurious to the pavement?

A. If it had been spiked down as Mr. Richards said it surely would have been injurious.

Q. If it had been done in the way he testified it surely would be injurious?

A. In my opinion it would be.

Q. In what way would that injure the pavement?

A. It would allow moisture to get into the pavement.

Q. You have already testified that moisture is very injurious to that kind of pavement.

A. Yes, sir.

Q. At the last session you were asked by Mr. Thomas to examine a map, which has been referred to in evidence, and to give certain desired measurements, and you gave a long answer which begins on page 49 of the typewritten record in this case, and runs down to page 58. That answer was read by you from a typewritten paper, was it not?

A. Yes, sir.

Q. Who prepared that paper?

A. I prepared it myself.

Mr. THOMAS: One moment, please. I wish to put this on record. Is it contended that it was improper for the witness to read from that memorandum?

Mr. WORTHINGTON: It is not.

Mr. THOMAS: I understand that it was arranged that  
429 that might be done in order to save time.

Mr. WORTHINGTON: That is right.

By Mr. WORTHINGTON:

Q. From what data did you prepare that?

A. From measurements which I made on the map.

Q. Who made the map?

A. Mr. Burns made the map.

Q. From what data?

A. From data which he obtained by measuring the patches after the repairs were made on M street.

Mr. THOMAS: Pardon me. There were marks of yours there too, were there not?

The WITNESS: I put in the blue and red pencil marks show-

ing where the pavement was acted on by water and by gas and water combined.

By Mr. WORTHINGTON:

Q. From what data did you put in those marks?

A. Those are measurements of my own, made while the pavement was being removed from the street.

Q. Measurements recorded where?

A. Recorded in my note-book.

Q. Without reference to exactness I wish you would tell us about what percentage of the pavement which was replaced, laid under the first contract, was affected more or less by gas.

A. I rather dislike answering that question, because I feel that it is more uncertain than anything else. I have  
430 guessed at it by looking at the map, and my present answer might be a different guess from that, because I have not the map before me.

Q. Just look at the map, and give us a reasonably close approximation to the proportion of replaced pavement that was affected by gas. In the first place give us the proportion as to the pavement that was laid under the first contract, and then as to the pavement laid under the second contract.

Mr. THOMAS: That refers to gas alone.

Mr. WORTHINGTON: No; affected at all by gas.

A. I should think about 40 per cent of the pavement was attacked by gas.

Q. Do you mean about 40 per cent of the whole pavement, or of that which was replaced?

A. Of that which was replaced?

Q. I ask you the same question as to the pavement which was laid under the second contract, that was replaced.

Mr. THOMAS: That means where gas had anything to do with it.

Mr. WORTHINGTON: Yes.

A. I should judge about 10 per cent.

By Mr. WORTHINGTON:

Q. About 10 per cent?

A. Yes, sir.

Q. As to the parts of this replaced pavement which you have concluded were not affected by gas at all, did you base  
431 your conclusion upon the fact that there was no smell of gas?

A. There was no smell of gas, and several samples

were brought into the laboratory, and I tried to extract gas from them, but could not.

Q. How many samples?

A. Oh, it may have been five.

Q. How many of those were taken from the pavement laid under the first contract, and how many were taken from the pavement laid under the second contract.

A. Those were all taken from pavement laid under the first contract.

Q. You did not make any such test as to the pavements laid under the second contract at all?

A. No; I drew my conclusions with reference to the pavement laid under the second contract from what I found in the pavement laid under the first contract, and what I had already arrived at in previous similar cases.

Q. I want to know upon what you base your conclusion. Was it upon anything more than the absence of the smell of gas?

A. I have found that when the smell of gas is absent it is quite conclusive that there is no gas there.

Q. Then you do mean to say that you base your conclusion upon the fact that there was no smell of gas there?

A. On the fact that there was no smell of gas, after having proved my conclusion by making tests on samples which were taken from near the rim of the portions of the pavements affected by gas.

432 Q. Mr. Dow, if there is anything which led you to the conclusion that 90 per cent. of the pavement replaced under the second contract had not been affected by gas at all, except the fact that there was no smell of gas about it, I wish you would tell what it was.

A. I examined all the pavements for the smell of gas, and to prove that no gas was present where there was no odor, I took about five samples from positions in the pavement just adjacent to where the pavement was that was injured by gas, and I found no gas at all from them in my laboratory, and I concluded from that that my sense of smell was sufficiently accurate to base my opinion on.

Q. Those five samples were all taken from pavements that were laid under the first contract?

A. Yes; but the same conditions existed under the second contract.

Q. That is your conclusion.

A. Yes.

Q. From those experiments and from the fact that there was no smell of gas in 90 per cent. of the pavements which were laid under the second contract, you concluded that 90 per cent. of the pavements had not been damaged by gas.

A. Yes, sir.

Q. I wish you would smell this sample of asphalt pavement which I have here, and tell me whether you can detect any smell of gas about that. (Handing sample of asphalt pavement to witness).

A. Is this asphalt pavement?

Q. Yes, sir.

433 A. (After examining sample referred to) I would never smell a sample like this for gas.

Q. Why.

A. Because it is not freshly broken. I only smell freshly broken samples. The gas escapes from the outside of a sample very readily, and diffuses in the air.

Q. You can break up those samples, if you please.

A. (After breaking a piece of the sample referred to and smelling same). Yes, I detect the odor of gas in this.

Mr. WORTHINGTON: The Examiner is requested to take this bag of samples, mark the same for identification, and preserve it for further reference in this case.

The sample above referred to is marked for identification Exhibit Dow Cross Ex. No. 1.

The WITNESS: I would like to say here, if I may, that the pavement on the street was not in a condition such as those samples are in. It was freshly broken from the entire sheet of pavement, and retained the gas odor longer. With a freshly broken sample it is very easy to detect the smell of gas.

By Mr. WORTHINGTON:

Q. I understand your testimony to be that when a pavement which is in place on the street has been once affected by gas, the smell of gas will remain about it for an indefinite time after the flow of gas to it has been stopped.

A. Where it is a heavy sheet?

434 Q. Yes.

A. I believe it would last as long as this pavement has been down.

Q. I show you another sample of what purports to be pulverized asphalt, and which we will hereafter show was taken today from an asphalt pavement in this city, and I ask you if you notice any smell of gas about that.

A. (After examining sample referred to) No, I cannot say that I do.

Mr. WORTHINGTON: The examiner is requested to take charge of this sample and to mark same for identification; and to note on the record that the sample is produced at 25 minutes of 4 o'clock p. m.

The sample above referred to is marked for identification Exhibit Dow Cross Ex. No. 2.

By Mr. WORTHINGTON:

Q. You have spoken of several pavements in this city as being affected by gas. What led you to the conclusion that they were affected by gas?

A. The smell, principally.

Q. Anything but the smell?

A. No, I could not say there was anything but the smell.

Q. How about the pavement in front of the Arlington Hotel, to which you referred?

A. The smell indicated that to me.

Q. Do you mean that the smell is noticeable in walking over the pavement?

435 A. No; in digging into it and taking out a small piece and smelling it.

Q. In that case in front of the Arlington Hotel, for instance, did you go and dig up a piece for the purpose of smelling it?

A. Yes; several times.

Q. What led you to suspect that there was gas there? Or have you been seeking gas all over the city, for the purpose of determining that—

A. When I see lines in the pavement I want to find out what causes the lines. Gas seems to be the most common cause for those lines parallel with the lines of traffic.

Q. There is no doubt, is there, that even though an asphalt pavement may be attacked by water, which will in time disintegrate it, the mixing of illuminating gas with the water, and having both attack the pavement together, will accelerate the rate of disintegration?

A. Yes; it does.

Q. Could you give us any idea from your experience, as to the extent to which a considerable infusion of illuminating gas will accelerate that process of disintegration?

A. No, I cannot. In looking over my notes this morning I found one case where I have noted that the pavement smelled of gas in one section, and adjacent to it it was free from this odor; and I noted that I could notice no difference at all between the place where I smelled the gas and the place where I did not smell it.

Q. Did you examine the two places to see whether  
436 the proportion of moisture was the same in both?

A. No; I did not. I should judge they were the same from the looks of it, merely.

Q. According to that test the gas does not do any injury. Is that right?

A. I should not say so; no, there must have been some difference, which I did not detect. I merely answered you in that way to show how hard it is to answer such a question as you ask me.

Q. What is the experience which leads you to think that gas does accelerate the disintegration in such a case?

A. I do not really know of any experience, except in the laboratory.

Q. It is purely a matter of theory then?

A. I might say further than this that it really appears in the street where gas attacks a pavement that the pavement goes to pieces more readily in that spot; but there is no possible proof of that.

Q. Have you always been of that opinion?

A. No, I have not.

Q. When did you change your views about it?

A. That I cannot say. I have been slowly changing since 1898, I think it was.

Q. What was your opinion on that subject in 1898?

A. My opinion was that it was all gas. (Referring to report) While I have this report before me could I answer further on that question?

437 Q. Yes.

A. This is what leads me to my conclusion that I was altering my opinion as to the gas alone—this statement here of the action of water coming up through the concrete.

Mr. THOMAS: What time is that?

A. I could fix that by the date. I am not certain. I said 1898, but I must have been mistaken. It was along about the summer of 1898 that I began to suspect that gas not not the only cause of disintegration.

By Mr. WORTHINGTON:

Q. In this report you say—I read from page 111 of the printed document:

“As it has been doubted by some that this disintegration is really due to illuminating gas, I have made a most thorough investigation of the subject and believe have positively proven that gas is the cause.”

What was the most thorough investigation which you there say you had made?

A. I have not made myself very clear in that report. The thorough investigation was to prove that it was not marsh gas or gas from decaying vegetation, which the gas company wished to prove; but the investigation was to prove that it was illumi-

nating gas and not that gas. I believe you will see by reading further on—

Q. Let me read what just precedes this, and see whether you had any marsh gas in mind when you wrote that.

438 “Disintegration of pavements from the absorption of illuminating gas, escaping from leaky gas pipes or mains under the pavement: There are several streets in the city being ruined by this means, and it appears to be a common thing in all cities having gas. The pavements are affected in very much the same way as when disintegrated by coal-tar binder, except the fine cracks, running parallel with the street, make their appearance some time before the pavement begins to crowd. Pieces of the surface mixture taken up smell very strongly of illuminating gas, and in some cases the gas can be ignited by applying a match to the under surface when it has just been taken up. In nearly every case enough gas will be given off by heating a small piece of the affected pavement in a tube to have it flash by igniting.

“As it has been doubted by some that this disintegration is really due to illuminating gas, I have made a most thorough investigation of the subject and believe have positively proven that gas is the cause.”

Do you mean to say that you there refer to anything but illuminating gas?

A. Yes; if you will read on further you will see that my proof goes to show that the gas was derived from illuminating gas. The gas was not found in the pavement.

Q. Derived from what? Derived from illuminating gas?

A. The gas in the pavement was not of the same composition as illuminating gas, and for that reason some parties doubted that it came from the gas pipes in the city; and I started quite an investigation to prove that illuminating gas could be  
439 turned into the kind of gas we found in the pavement, by the action of the asphalt on it. And my further remarks show that that is what I had in mind when I was working on it.

Q. I see that going along a little further you say, after giving the result of your test:

“Having now found that a gas is present in the pavement so affected, let us proceed to examine as to its source. It can not be a natural gas or marsh gas, for there is no analysis of such gases on record that contain appreciable amounts of heavy hydrocarbons, while the gas from the pavement is rich in these compounds.”

So you went on to show that it could not be marsh gas instead of showing that it could, did you not?

A. That it could not be marsh gas, and that it must be illuminating gas.

Q. Now I come back, and ask you what was the thorough investigation which you made to show that these pavements in the city were being ruined by illuminating gas, and to satisfy you that it was that and nothing else?

A. I think you misunderstand the report there, Mr. Worthington.

Q. I hand you the report—

A. I will admit here the point you wish, that I did believe that gas was the cause—

Q. I am not asking you to admit that it was the cause; but I am trying, for the benefit of the court, to get at what is the fact in this matter, Mr. Dow. As you have testified, as I  
440 understand, that gas has not amounted to much in the injury of the M street pavement, I want to see how that agrees with your previous statements on the same subject, and with your experience.

(At this point the witness examines the report referred to in the preceding questions).

The WITNESS: Will you ask me the question again, Mr. Worthington?

By Mr. WORTHINGTON:

Q. I have understood you to say that I misunderstand your report. I have handed you the report and ask you to call attention to anything in it which will show that you were not referring to damage by illuminating gas and by illuminating gas alone, in the extracts from that report which I have read.

A. I simply wish to state here that in this sentence in the report I refer to the differentiation of illuminating gas from another gas—that is, the sentence: “As it has been doubted by some that this disintegration is really due to illuminating gas, I have made a most thorough investigation of the subject and believe have positively proven that gas is the cause.”

That sentence refers to a differentiation between illuminating gas and other gas. I will admit that I believed this at the time. “There are several streets in the city being ruined by this means, and it appears to be a common thing in all cities having gas.”

That is referring to illuminating gas. But where I say  
441 “positively proven” I refer there to the differentiation of illuminating gas from other gases.

Q. Do you mean to say that in this sentence, which has now been read several times, beginning “As it has been doubted by some that this disintegration is really due to illuminating gas,” that you did not intend to say that your experience had satis-



fied you that the pavements were being ruined by illuminating gas, and by that alone?

A. No. I say above there that I believe they are. I did not say I had positively proven that.

Q. You said you had made a most thorough investigation, and believed that you had positively proven it. Did you believe you had positively proven, by your experience, that illuminating gas had done the damage?

A. I really did believe that; but that is not what that refers to in that case. That refers to the distinction between illuminating gas and marsh gas in that particular sentence there.

Q. Do you mean that it means the damage was not by marsh gas, but by illuminating gas?

A. That it was not by marsh gas but by illuminating gas.

Q. What was the thorough investigation that you had made which showed that it was illuminating gas and not marsh gas that did the damage?

A. The investigation, as narrated there in the report, consisted in various tests that I made on gas extracted from the pavements.

442 Q. Then, Mr. Dow, having this subject before you, you did make tests and experiments, and satisfied yourself that it was illuminating gas that was ruining several pavements in this city at that time?

A. I satisfied myself that illuminating gas was in the pavements that were being ruined—pardon me; at that time, you said?

Q. Did you not satisfy yourself they were being ruined at that time by illuminating gas?

A. I satisfied myself at that time; yes, sir.

Q. If I understand you, you have since come to the conclusion that you were wrong about that?

A. Yes.

Q. What were the pavements to which you refer there?

A. In the report?

Q. Yes. You say in what I have just read from this report: "The are several streets in the city being ruined by this means." What were the streets to which you referred?

A. There was the I street pavement, in particular; and there was another pavement down in the southwest, which I cannot place at present.

Q. Any other?

A. I cannot remember any other. There may be others, though. I will not say there are not.

Q. In the endorsement which you made on the 23rd of Janu-

ary, 1902, which is in evidence, after referring to your visit to this locality with Mr. Richards, you say:

443 "From the superficial examination that I made of this pavement I am of the belief that much the greater part should be resurfaced as it is rotting badly from illuminating gas and from water soaking up through the concrete base." What were the indications which led you then to report that this entire pavement was being ruined by the combined action of gas and water?

A. I did not make that statement from that report. I stated that it was being disintegrated from water soaking up through the concrete and from gas. I knew, and I am positive that I was right about it, that there were a number of cases where gas never acted on the pavement where the pavement disintegrated, and it was my belief then that there was much more water damage than I afterwards found in looking over the pavement—water damage without the presence of gas. That is my recollection.

Q. You mean then that you thought there was less gas than you afterwards found?

A. No, I did not mean that. I mean there was not as much pavement replaced because of water damage as we expected to have to replace. Upon looking over the pavement superficially, I thought the entire south side of M street from 35th to 36th street would have to be replaced for that reason, but upon cutting into it for the purpose of making repairs, we found that we could select pieces out of it that were in fairly good condition.

Q. Is there any difference in the appearance of an asphalt pavement that has been disintegrated by water, and the appearance of an exactly similar pavement that has been  
444 disintegrated by the action of water and gas combined?

A. When a pavement is disintegrated by gas and water combined, those cracks appear more readily. As I said before, the cracks are really caused by the softening of the underneath portion of the wearing surface, either by gas or by rotting from water. The gas softens the pavement more readily than water, the water merely rotting it. Those cracks will appear more readily with gas than from any other cause.

Q. Take a chunk of pavement when it is cut up. I do not refer to the cracks in the surface—lay that aside. Is there any other difference by which you can tell whether the disintegration was caused by water alone or by water mixed with illuminating gas?

A. There is no difference at all in the appearance.

Q. Then if such a pavement has been disintegrated by the combined action of water and gas, and the smell of gas has dis-

appeared, there will be no way of telling that the gas had contributed to the result?

A. It has been my experience though, that the gas does not disappear.

Q. I am assuming that. Perhaps your experience may not conform entirely to that of others.

A. My experience covers a great many years.

Q. I will ask you to assume this: If a person who is examining a sample has no sense of smell, he could not tell whether the action was that of water and gas combined or of water alone?

445 A. Not merely by looking at it; no.

Q. I understand you to contend that the smell of gas will remain in it, and that when you break it open it will come out?

A. When it is in a sheet.

Q. And will never disappear?

A. I find that when the water has soaked up to the very surface of the pavement that the gas will then begin to disappear. In the majority of the pavement which we removed from M street there was still left from an inch to a quarter of an inch of good material on top of the rotten material.

Q. If I have understood what you have testified here, you found on M street spaces of bad pavement where there was no smell of gas, and on each side of one of these places and contiguous to it you found other portions of bad pavement where there was a smell of gas?

A. Yes.

Q. How close together were these patches of gas-smelling pavement, separated by non-gas-smelling portions?

A. Not a foot in one case.

Q. Would you think that illuminating gas might have affected two sections of a pavement in places not a foot apart, and never have permeated the intervening foot of pavement?

A. There must be some end to the gas action, and that is somewhere between these two samples. Where I got the very faintest odor of gas was about a foot or not a foot from where

446 I found the pavement that did not smell of gas, and showed the same action.

Q. There is not any doubt about this, is there: that as to a part of this pavement which was replaced, its condition was due to the combined action of gas and water?

A. No; there is no doubt of that.

Q. What proportion of the pavement that was laid under the first contract, would you say, was in that condition?

Q. I believe I said 40 per cent., after looking at the map.

Q. And ten per cent. under the second contract?

A. Ten per cent. under the second.

Q. Have you any feeling or bias against the Barber Asphalt Paving Company?

A. None at all, as far as my official duties go.

Q. Why do you qualify your answer in that way?

A. Because a man cannot be unjustifiably injured by a company without having some feeling about it.

Q. How did the Barber Company unjustifiably injure you?

A. By having a provision put in the District appropriation bill. But I would like to state that even since that provision has been put in there I have had a case in Harrisburg where I had to report on the working of two paving companies, one of which was the Barber Asphalt Paving Company, and I reported very much more in favor of them than I did of the other company, and I can produce such a report if necessary.

447 Q. Is this the provision to which you refer? I quote from the District Appropriation Act, approved April 27th, 1904:

"Provided, that such Inspector of Asphalts and Cements shall not receive or accept compensation of any kind from any person, firm, corporation or municipality other than the District of Columbia"?

A. That is the section to which I refer. I might say here that the greater part of my work on this case, and my notes, were all made before that provision was put in the bill, and that I endeavor in every way to keep my personal prejudice out of my official work.

Q. Have you resigned your position as Inspector?

A. No, I have not.

Q. Or spoken to your superiors about it, with reference to being relieved of your duties?

A. No, I have not.

Q. Have you entered into negotiations with any company engaged in laying asphalt pavements or working in asphalts in any way, with reference to getting employment with them?

A. Yes; with several.

Q. Have you had any negotiations of that kind, with reference to any company engaged in laying or using Bermudez asphalt?

A. No; never.

Q. What are the companies with which you have had such negotiations recently?

A. I don't know that that has anything to do with this  
448 case, has it, Mr. Thomas?

Mr. THOMAS: I do not think it is necessary to press that, is it, Mr. Worthington? That is a private matter.

By Mr. WORTHINGTON:

Q. Mr. Dow, of course I do not wish to inquire into private matters, but it seems to me it is a proper subject of inquiry here as to whether you are interested, or expect to be interested in any way, with companies that are rivals of the Barber Asphalt Paving Company.

A. I might say that at the present time I do not expect to be interested, because things have not turned out as I had anticipated, and that I have no hopes of going with any other company—if that will answer Mr. Worthington. I will also state that I have been trying to become connected with other companies ever since—well, for a number of years past. It is natural for a man to try to better his position.

Q. I do not question that at all, Mr. Dow; but I thought that perhaps your relations with other companies might be such as might—without any intention on your part—affect your judgment on these questions, which are merely matters of opinion.

A. I believe if you will look into all the work, and everything I have done for the other companies and for the Barber Company, you will find that I have been trying to be impartial in everything I have done.

Q. I judge, from what you say about this provision in the District Appropriation Bill last year, that before that  
449 time you had been giving testimony as an expert in these matters?

A. Not in this matter; no.

Q. In asphalt matters.

A. In asphalt matters; yes.

Q. By what companies had you been employed in that way prior to the passage of that act?

A. By the Globe Asphalt Company. Pardon me; I do not know whether that is the name of it or not. It is either the Obispo or the Globe Asphalt Company—I am not positive which it is. I was employed once for the Warren Brothers Company. There may be others, but I cannot remember now. If you like I can think it over and tell you.

Mr. WORTHINGTON: Very well.

The further taking of these depositions was thereupon adjourned until tomorrow, Thursday, March 2nd, 1905, at 2 o'clock p. m.

450 WASHINGTON, D. C., *March 2, 1905*—2 o'clock p. m.

Met pursuant to adjournment.

Present on behalf of the complainant, Mr. WORTHINGTON.

Present on behalf of the defendant, Mr. THOMAS.

Cross-examination of ALLEN W. DOW—Resumed.

By Mr. WORTHINGTON:

Q. Mr. Dow, in reference to some of the laboratory experiments you have testified about, do you find in your profession that laboratory experiments can always be relied upon when you come to deal practically with the subject-matter in business?

Mr. THOMAS: I object to that as being too general, and not referring to the subject matter inquired of in this case.

A. Yes; when the laboratory experiments are interpreted in a proper manner, after having practical experience.

Q. Have you had asphalt pavements, one composed of Bermudez asphalt and one of Trinidad asphalt, subjected in actual practice to the same conditions to which you subjected them in the laboratory experiment you have spoken about?

A. Yes.

Q. Where and when?

A. There was a case on D street between 14th and 15th Street where the two pavements adjoin. The Trinidad pavement along the gutter is badly affected by water, and  
451 there is a sharp dividing line between the two pavements.

There is another case where the Bermudez pavement on the same block was repaired with Trinidad. The Trinidad repair in the gutter was only two years old and the Bermudez pavement was eight years old when this examination was made, and the Trinidad had been eaten into to a depth of two inches and the Bermudas had not been attacked by the water. I might say there are over ten similar cases which I could cite around the District to which I have called the attention of the Engineer Commissioner.

Q. I wish you would enumerate them as far as you can.

A. There is a patch on S street. I am not positive of the exact location. It was the first contract the Bermudas people ever made. There is another case on K street that I know of. There are several cases on D Street between 8th and 9th, and there are other cases the location of which I cannot exactly remember.

Q. Just where is the case you first mentioned on D Street

between 14th and 15th, near the gutter. On which side of D Street is it?

A. On the south side of D street.

Q. D Street Northwest?

A. Northwest.

Q. Is it near 14th or near 15th Street?

A. Near 15th Street.

Q. How far from the west line of 15th Street?

A. I don't know.

Q. Well, about?

A. About 120 feet.

452 Q. Locate as nearly as you can the place on that block where the repairs were made with Trinidad asphalt to which you refer?

A. A repair was made down near a hydrant, a little to the right of the fire engine house—down nearer 14th Street.

Q. When you say the right, do you mean the east or the west?

A. To the east.

Q. Can you locate the patch on S Street to which you refer?

A. I can by going to it, but it is so long since I visited it, that I cannot remember now.

Q. You cannot even tell between what streets it is?

A. No, I cannot.

Q. Can you locate the patch on H Street to which you next referred?

A. No, I cannot. I think it is very near the corner of First Street, a little east of First Street in the center of the street.

Q. Northeast or northwest?

A. In the northwestern part of the city.

Q. Can you locate any more particularly the places on D Street between 8th and 9th to which you have referred?

A. No, I cannot. There are several patches there.

Q. Are all of these places now in existence so that the observer can see the situation?

A. I believe so. One case I do not believe is in existence and that is the one between 14th and 15th Streets on D, by  
453 that hydrant. It is my impression that that whole thing has been taken out and replaced since I saw that. In fact, the conditions all through may have changed, as I have not seen these places for over a year.

Q. There is no place, then, where you can say certainly that there is now an exhibition of that kind to be seen?

A. I think I could take people to several.

Q. But you cannot now describe such a place at this moment?

A. Some of them must be in existence now, but I am not positive but what they have been repaired.

Q. I wish you would inform yourself on that subject before the next session.

A. All right.

Q. I forgot to ask you at the last session whether you held the Barber Asphalt Paving Company responsible for the introduction into the District appropriation bill of the proviso which was read at the last session?

A. I cannot say that I hold the Barber Asphalt Paving Company responsible, but I can hold their president responsible for it. I have recently had that told me by Senator Penrose. He told me Mr. Mack had asked him to put it in.

Q. How long ago did you get that information?

A. Not two weeks ago.

Q. You have spoken of one of the endorsements which is in evidence of illuminating gas affecting asphalt pavements in other cities?

A. Yes.

454 Q. What is your knowledge on that subject? To what cities did you refer?

A. I have seen it in Brooklyn and in Louisville, Kentucky. There was a case in Louisville, Kentucky, similar to this M Street case. The water was really doing much more damage than the gas was.

Q. Was that one of the cases to which you referred when you said illuminating gas was ruining pavements in this and other cities?

A. In that report?

Q. Yes.

A. No, it was not. I have noticed it in several cities the names of which I cannot recall now.

Q. In that report you speak of illuminating gas ruining asphalt pavements in this and in other cities. I would like to know what were the cases in other cities to which you referred or what you had in mind.

A. That report was written six years ago and I cannot remember now what pavements I saw then. I have seen numbers and numbers of pavements, and every time I go anywhere I examine pavements in the cities. I cannot remember the particular instances.

Q. You cannot specify any city you referred to in that report?

A. Not in that report, no, except in New York City.

Q. I understand that your experience teaches you—that is your testimony—that this serious injury from illuminating gas occurs only when the gas is in cooperation with water?



A. In cooperation with water; yes.

455 Q. In places where there is a good deal of moisture?

A. The moisture can enter from the top of the pavement cracks, in those longitudinal cracks.

Q. There must be moisture there, either coming up through the concrete or working down from the surface?

A. Yes, the asphalt cement is softened; and as far as softening goes, it should not disintegrate the pavement, because the oiled roads of California are made with an oil that is softer than it is possible for a gas to soften asphalt to, and these roads sustain quite a heavy traffic in some instances.

Q. Are you acquainted with conditions in this regard in the city of Denver, Colorado?

A. No.

Q. You do not know then whether Denver is a place where the streets are usually dry or not?

A. No.

Q. And you do not know whether or not pavements in that dry place have been destroyed by illuminating gas where there was very little water?

A. No. Of course they sprinkle the streets in Denver.

Q. I understand you do not know even by information obtained from others anything about the situation in this regard in Denver now?

A. I do not. I have seen them sprinkle the streets there and I know for that reason there is liable to be dampness there.

456 Q. Do I understand you to mean that in those cases the gas first affects the pavements and lets in the water, and then the two do the work?

A. Yes. I have testified that gas would cause those cracks, but if there is no water present or if the asphalt is not acted upon by water, they will heal up.

Q. Do you know any place where the pavements are not affected by water from rains?

A. The Bermudas asphalt pavements are not affected by water.

Q. I did not mean that. I want to know whether there is any place you know of where street pavements are situated so that they will not be subject to being affected by rain—to have water deposited upon them by rain or otherwise?

A. No, I do not know of any case.

Q. And in the city of Washington a rain is quite a common thing?

A. Yes.

Q. They sprinkle the streets here a good deal, do they not?

A. Yes.

Q. How about M street? Is that a street that is sprinkled?

A. I believe they sprinkle it. I have never seen it that I remember.

Q. If a pavement made of Trinidad asphalt was affected by gas so as to crack in this way, and then the cracks let in the water, and the water and the gas then together destroyed the pavement, do I understand you would attribute the  
457 principal difficulty to the water?

A. Yes.

Q. What kind of asphalt was used in making the repairs on M Street between 31st and 36th Street?

A. In the first contract Trinidad asphalt was used, with the exception of one piece of Bermudas asphalt, put in to see if Bermudas had acted the same as the Trinidad had.

Q. How large a section of Bermudas asphalt was that?

A. I should think—this is merely guessing—

Q. You mean approximating, I suppose?

A. Approximating; yes, sir, and I may possibly be wrong in my ideas now, but I should think about 100 feet long and the width of the street.

Q. Just where was that section made?

A. That was to the east of 3416 M Street, I think it was. It was between 34th and 36th Streets. Just a glance at the map will tell me where it was.

Q. You may look at the map.

A. Yes, it started in just to the east of 3416.

Q. On the north side?

A. On the south side. The Trinidad pavement was acting badly from the disintegration of the water alone, and it was a place I was watching for a long time. I know that it was showing disintegration three years after the pavement was laid in that place; so I had Bermudas put in there. I see it is only about 53 feet in length instead of 100, as I said.

Q. Do you know whether or not the place to which you have just referred was disintegrating at the time you made  
458 your statement in the report which is in evidence, that a great many asphalt pavements in this city were being ruined by illuminating gas?

A. No, it was not in existence at that time.

Q. What was not in existence?

A. This pavement was not.

Q. What is the date of that report?

A. 1899.

Q. Was not this pavement laid in 1898?

A. Yes, but the date of that report was gotten up before that.

Q. What kind of asphalt was used in making the second repairs on M Street?

A. The second contract was repaired with Cuban asphalt.

A. Cuban asphalt?

A. Cuban.

Q. Now, before these repairs were made on M Street, was anything done in the way of endeavoring to relieve that street of the presence of illuminating gas which you say you had discovered there?

A. Nothing was done at all.

Q. Was any change made in the situation with reference to relieving that locality of the danger of injury to the pavement from water?

A. Nothing at all was done to the pavement.

Q. The objections then as to gas and water both are the same so far as you know now as they were from 1898 to 1902?

459 A. As far as I know, yes, sir.

Q. I understand that you have said the residuum of petroleum will not disintegrate asphalt pavements?

A. It depends entirely on the asphalt with which it is used.

Q. Then explain what you mean.

A. In some cases, in certain quantities, it is evidently a passable flux. I will not say it is an excellent flux. In other cases it is entirely unsuitable.

Q. In what cases is it good and in what cases is it unsuitable?

A. I believe it could be used with Bermudas asphalt with success, and I think with Trinidad asphalt a little oil would be a good thing to mix with it. With a harder asphalt, such as a Cuban asphalt, it is entirely unsuitable. The petroleum residuum I am here referring to is that from eastern petroleum oils, the paraffine oils.

Q. Did I understand you correctly on your direct examination to say as to this M Street pavement that a part of it was taken up against your orders, before you had a chance to inspect it, and that as to a part of that which was taken up, there was no disintegration?

A. You misunderstood me. I said there was a part removed from the street contrary to my orders before I had inspected it. It was the first part of the first contract they were removing, and they used to take the material right off the street as soon as it was removed from the concrete base; and the wagons came up before I got there in the morning and carted it off.

460 Q. How many square yards were removed in that way?

A. I said for an extent of about 70 feet, beginning at the east end of the pavement and going west, but I think that is a too liberal estimation. I think possibly it was less than that. I cannot remember definitely the quantity. There was considerable taken up there.

Q. Are you still of opinion that where an asphalt pavement

is being injured by gas and water, the fine cracks running parallel with the street make their appearance some time before the pavement begins to crowd?

A. Yes, that is generally the rule.

Q. Does the crowding, as you term it, begin in your judgment before or after water has had a chance to get into the cracks and help the work of destruction.

A. I cannot say. I have never experienced that.

Q. Is there any such condition in the city of Washington as an asphalt pavement being free from moisture?

A. Theoretically speaking, no; but there are some conditions where the surface of the pavement is intact, and the underneath portion of the pavement is very well protected from moisture. You might say they are practically free from moisture.

Q. So free, do you think, that illuminating gas in no quantity would produce the effect which you say follows from the combined action of the gas and water?

A. No, I do not, because as soon as the illuminating gas softens the mixture, it would begin to move and thus allow water to get into it from the surface. I might, however, make one exception to that—that little patch which I found  
461 on M Street right at the corner of 32nd and M in the second contract.

Q. That was a few square yards?

A. It was only about one square foot, one or two square feet.

Q. One or two square feet out of about how many square yards of pavement in the city of Washington?

A. I have not examined them all. I could not say but that the same condition existed in other cases.

Q. It has been a part of your business to examine these pavements all over the city, has it not?

A. Yes, but never so minutely as I did that one.

Q. You spoke of an experiment you made in a laboratory experiment, using Bermudas asphalt and Trinidad asphalt, under similar conditions. Where did you get what you call the Bermudas asphalt?

A. From the Barber Asphalt Paving Company.

Q. From some employe there?

A. No, from a barrel of stock that was brought in.

Q. How did you know that was Bermudas asphalt?

A. I believe they were truthful people and told me the truth about it.

Q. That is what I want to get at. You only know that from what somebody else told you?

A. I only know that from hearing it from the officials of the Barber Company.

Q. What official? Did any official of the Barber Company

tell you that in this particular barrel there was Bermudas asphalt and nothing else?

A. I cannot say they did. It was not a Trinidad asphalt, though.

462 Q. You judge that from the appearance?

A. From the appearance and analysis and smell.

Q. The other sample you took you have called Trinidad asphalt. How do you know that was Trinidad asphalt?

A. That I took from the yard of the Barber Asphalt Paying Company also.

Q. And you assumed it was Trinidad asphalt because it came from that yard?

A. Not only that, but I saw it refined there. They bring the crude asphalt there from Trinidad, which I am very familiar with, and they refine it there. I took some of the material which they had refined, from the yard, that came from their crude Trinidad.

Q. Do you mean to say that you know they did not at that time refine any except Trinidad asphalt?

A. I know at that time they did not.

Q. How do you know it?

A. I was present a great part of the time and saw it. I knew what material they were bringing into the yard.

Q. Do you know Trinidad asphalt positively, just from the looks of it?

A. I think I do.

Q. You can take a number of samples of the different asphalts, if they are submitted to you, and pick out the Trinidad, can you?

A. I can pick out the Trinidad asphalt.

Q. Do you mean to say you cannot pick out the Bermudas asphalt?

463 A. Not every time. I think I might possibly be able to pick it out, though.

Q. All things are possible. The question is what is certain.

A. I have never failed yet. I might fail. I will not say I am infallible in that respect, because the Bermudas asphalt resembles other asphalt very closely. The Trinidad does not.

A. You have spoken of going on this street with Professor Monroe. What is his full name?

A. Professor C. E. Monroe. I do not know what the initials stand for.

Q. He is a gentleman who is one of the faculty of the George Washington University?

A. Yes.

Q. Is he an employe of the District?

A. No, he is not.

Q. In what capacity was he going over the street with you?

A. I believe as a representative of the Gas Company.

Q. I observe here that you have been questioned from type-written questions and answers. Did you prepare those?

A. Partly.

Q. Who helped you?

A. I prepared a memorandum of the testimony of the various witnesses and handed it to Mr. Thomas, and he made up the questions to ask me.

Q. You are sure you made up the questions, are you?

A. He made them up in my presence.

Q. What I meant was whether you are sure you did not do it yourself.

464 A. I am positive I did not do it myself.

Q. In making the repairs on M Street, under investigation here, did you retain the concrete foundation that was there before?

A. Yes, we did.

Q. You simply put on another surface?

A. Yes.

Q. You have told us that in two places on this M Street pavement, as I recollect, you saw indications of the presence of gas without water?

A. Yes.

Q. Can you give the Court any information as to where that gas came from?

A. No; I cannot.

Q. How it got there?

A. No.

Q. You have no suspicion even on the subject?

A. I have none at all. I have heard there were many leaks of gas, but we were not able to find them.

Q. Are you acquainted with any source in that neighborhood from which gas could get into those places except from the connections of the Gas Light Company?

A. No, I do not know of any others.

Q. Then when you said you noticed gas at a certain place over there but could not say it came from the gas main you did not mean to suggest that it came from any other source than the Gas Company's pipes?

A. The Gas Company's pipes or the private supply pipes, I do not know which.

465 Q. I mean you meant some of the connections of the Gas Company?

A. Yes.

Q. You have said that in some places on M Street there

was disintegration from water alone, and in close proximity, and sometimes on both sides, disintegration from the combined action of water and gas?

A. Yes.

Q. Was the amount of moisture in the two places about the same, or was it greater or less?

A. It looked just about the same.

ALLEN W. DOW,  
*By the Examiner by Consent.*

Subscribed and sworn to before me this — day —, A. D., 1905.

*Examiner in Chancery.*

466 GEORGE C. BURNS, a witness of lawful age, called by and on behalf of the defendant, having been first duly sworn, is examined

By Mr. THOMAS:

Q. Mr. Burns, you are employed by the District, I believe?

A. Yes, sir.

Q. In what capacity?

A. As a computer.

Q. How long have you been engaged in the District employment?

A. I have been with the District now since 1880.

Q. When you say you are employed as computer, what do your duties embrace?

A. My principal duties are measuring cement walks, laid under contract by the District, and preparing estimates for the walks and preparing the walks after measurement for assessment.

Q. What is your profession?

A. Civil engineer.

Q. How long have you been engaged in practicing that profession?

A. Fifteen years.

Q. I show you a plat in this case which has been testified to be a plat of certain street conditions under the first contract mentioned in the case, embracing M Street between 31st and 36th Streets. This map has already been offered in evidence.

I will ask you to state whether you drew this map?

467 A. I did; yes, sir.

Q. I will ask you to state who put these pencil marks, in red and blue pencil, on the map, whether you did it?

A. No, sir; I did not.

Q. I will ask you to state who put the ink lines on the map?

A. I did, sir.

Q. Is this map drawn to a scale?

A. Yes, sir.

Q. Can you tell me what scale?

A. 1 inch equals 20 feet.

Q. Did you make the ink lines between which these red and blue pencil colorations are made?

A. Yes, sir; I did.

Q. What does that space represent?

A. It represents new asphalt pavement put down there—patches.

Q. How soon after the new asphalt was laid there in patches did you make those measurements?

A. As soon as the asphalt was hard enough to bear me on it. I went there directly after it was packed.

Q. Do you know when you did it. Do you remember the time?

A. No, sir; I do not remember the date.

Q. At whose direction did you do it?

A. I was directed to do it by Mr. Hunt, the engineer of highways.

Q. Did you consult Mr. Dow at all about the matter?

A. No.

468 Q. Do you know whether he had anything to do with it?

A. Of course I do not know, but I think Mr. Dow went and asked Mr. Hunt.

Q. Never mind; I do not want that. Referring to this map, who placed the figures in these spaces that you have mentioned, and what do the figures indicate?

A. The figures here in red ink, written between the red lines there, indicate the dimensions of the cut. They were placed in there by myself.

Mr. WORTHINGTON: The width?

A. Yes, the width and length of it.

By Mr. THOMAS:

Q. I hand you a map which has already been offered in evidence and has been testified to be a map showing the work done under the second contract, embracing M Street between 31st and 33rd Street, and ask you whether you made this map.

A. Yes, sir; I did.

Q. What does the map represent?

A. The portions shown in tinted brown are the pavement that was undisturbed. The other portions, the dimensions in



red ink, inside the figures were the work that was replaced, patched.

Q. Did you put the pencil coloring, in blue and red, in these patches?

A. No, sir; I did not.

Q. Did you put the boundaries of the patches on the map?

A. I did.

Q. What was the condition of the pavement when you  
469 made the measurement of those patches and the measurement of the old pavement?

A. The old pavement was cut and ready for the new surface. It was measured before the asphalt was put in.

Q. Then you made this map before the pavement was resurfaced?

A. Before the pavement was resurfaced.

Q. While it was waiting the material to be placed thereon?

A. Yes, sir.

Pending the further examination of this witness, the taking of these depositions was thereupon adjourned, subject to notice.

470 WASHINGTON, D. C., *March 7, 1905*—2 o'clock p. m.

Met pursuant to agreement at the office of A. S. WORTHINGTON, Esq., Columbian Law Building, Washington, D. C.

Present on behalf of the complainant, Mr. WORTHINGTON.

Present on behalf of the defendant, Mr. THOMAS.

Whereupon, HOWARD J. DIFFENBAUGH, a witness of lawful age, called by and on behalf of the defendant, having been first duly sworn, is examined

By Mr. THOMAS:

Q. Please state your business and present occupation?

A. I am now employed by Andrew Gleason, in sewer work, as foreman.

Q. Were you employed by Mr. Sexton, the contractor who had the laying of the Capital Traction Railroad, when it was changed from cable to electric power?

A. Yes, sir.

Q. What was your position under Mr. Saxton at that time?

A. Foreman of temporary track.

Q. Do you remember when the temporary track was laid down on M Street between 31st and 36th Street?

A. It was some time during the winter and spring; I don't remember exactly when it was.

Q. Do you remember how many years ago it was?

471 A. About five years, I think, as well as I recall.

Q. Will you tell us where the track was laid between those streets?

A. It was laid on the south side of the street from 31st to 34th Street, and then we crossed over between 34th and 35th Streets to the north side and went from there down to the terminus.

Q. On the south side of the street, how many tracks were laid?

Q. What did you do for the other track?

A. We used the permanent track. We reconstructed one track at a time. We changed the system on one track at a time.

Q. How was it on the north side of the street, west of 34th Street?

A. I don't remember, but I think we had a double track from there down to the terminus, on account of the cars at the end of the line. I would not be positive about that, but I think there were two tracks.

Q. Who actually laid those tracks?

A. I had a sub-foreman named George Evans, a colored man.

Q. Where is he now?

A. He is in Philadelphia.

Q. Will you tell us how they were laid?

A. There were 30 foot rails and we bolted the fish-plates together with plow-share bolts. We call them temporary track bolts; but they are generally called plow-share bolts, with a flat head. They are bolted through the flat fish plates,  
472 with probably half an inch rise and the rail fits right in there. They are tied in with tie rods—three tie rods to the length of the rail.

Q. Three every thirty feet?

A. Yes, sir.

Q. Those fish plates were put in at the joints?

A. Yes, at each joint.

Q. Did or did not those bolts extend into the pavement?

A. No, sir; they were right up against the bottom of the fish-plate.

Q. What spikes were used on these temporary tracks, if any?

A. We did not use any. Mr. Saxton issued an order and sent it out by Mr. Fisher, I think, that we should not spike the streets.

Q. How long prior to this time was that?

A. It was on the same contract, when we were working down at the Peace Monument. It was probably three or four months before that. When we got up between 28th and 32nd Street on

M Street, the street sloped off a good deal from the permanent car track to the curb, and in order to keep the track from slewing we put wooden struts against the fish-plates and the curb.

Q. You mean to say that you put pieces of wood between the outside rail and the curb?

A. Yes, sir.

Q. What was that for?

473 A. To keep the track from slewing.

Q. From sliding?

A. Yes, sir; from sliding; but that was done where the street had a great deal of fall. After these tracks were down and the cars ran over them for one day it was almost impossible to move them. The dirt, and one thing and another, works around them and keeps them in place.

Q. Were you there when the temporary tracks were taken up?

A. Yes, sir; I had charge of the temporary tracks from the time we started until we finished.

Q. What was the condition of the asphalt in the streets so far as holes were concerned, where the temporary tracks were laid?

A. I did not see any.

Q. What repairs were made, if any, made necessary by the laying down of the temporary tracks?

Mr. WORTHINGTON: I object to the question upon the ground that this witness is not shown to be competent to testify on that subject.

A. I don't know of any repairs that were made. We just took up the track and moved ahead, and that was the last of it.

Q. What complaint was made of any needed repairs, by reason of having had the temporary tracks on the asphalt?

A. None at all that I know of.

474 Cross-Examination.

By Mr. WORTHINGTON:

Q. How long were these temporary tracks down on M Street between 31st and 36th Streets?

A. I judge about three or four weeks, to the best of my knowledge.

Q. Was it not longer than that?

A. No, sir; I don't think so.

Q. Do you know whether, on that part of M Street, the tracks at any time after they were put down, slewed or slipped to the curb?

A. No, sir.

Q. Or between 31st and 34th Street?

A. No, sir; but between 28th and 32nd Street, where we were on the south side of the street, we put wood struts in along there. Between 34th and 36th Street, on the north side of the street, it is more flat and there was no necessity to have anything to keep them from sliding.

Q. Did you put these struts in between 28th Street and 32nd Street?

A. Yes, sir.

Q. When you laid the track down?

A. Yes, sir.

Q. So there was never any sliding of the track?

A. No, sir.

Q. Were there holes in these rails, through which spikes could be driven?

A. Yes, sir; there were holes in them. They were the rails that were used on the old track. They were what we  
475 call center-bearing tram rails, and they were used on sleepers in horse car times.

Q. They were spiked down?

A. They used to use spikes, about 10 inches. That was in the sleeper when they were used as a permanent track, and that is what the holes in the rails were for.

Q. These were the same rails?

A. Yes, sir; the same rails.

Q. Did the railroad Company have any spikes, that you know of?

A. No, sir.

Q. How do you know they did not?

A. I never had any occasion to call for them. Mr. Saxton furnished everything to us.

Q. Then you do not know whether they had any or not. You only know that Mr. Saxton did not furnish any.

A. The railroad company did not have anything to do with that work.

Q. It was done by the contractor?

A. Yes, sir; the contractor furnished all that kind of material.

Q. You, of course, do not know what the railroad employes may have done about those tracks?

A. We had men on them all the time.

Q. And those men would report to you what was going on?

A. Yes, sir; I had charge of the men. I kept their time, and looked after them.

Q. Then your knowledge as to what was done would  
476 come through the reports of these men?

A. No, sir; I had them simply as track-walkers. In case anything got wrong, they were there to help. Each man

had so many blocks to look after, and in case the track did slew he could take his hammer and drive it back and tighten up these bolts.

Q. But I understand between 28th Street and 34th Street it never slipped?

A. We put these struts in, but they were liable to be knocked out by wagons passing by.

Q. Then it would slip?

A. Yes, sir; in places of that kind.

Q. I thought you said a while ago it never slipped?

A. We put these struts in as soon as we put it down.

Q. But you say the struts would get knocked out?

A. Yes; but then we had men to look after that.

Q. Do you undertake to say that during all this time the temporary tracks were down between 31st and 36th Street the temporary tracks did not slide down near to the curb so that the car steps would strike the curb?

A. They may have knocked the struts out and got out of line for a few minutes, until men got there. A man probably would patrol the track from 28th to 32nd Street. On a double track I used to give one man two blocks.

Q. Do you remember who the men were, that were put on these tracks?

A. No, sir.

Q. Were they colored men?

477 A. Yes, sir; they were colored men.

Q. You don't know where they are?

A. No, sir.

Q. Or what their names are?

A. No, sir.

Q. They would be the men who would know just what did happen about those tracks sliding, and what would be done to prevent it?

A. Yes, sir.

Redirect Examination.

By Mr. THOMAS:

Q. Would they know any better than you would?

A. No, sir.

Q. You were there, as I understand it, inspecting the work?

A. I was there and I had charge of them.

Q. Were you responsible for the work in any way?

A. Yes, sir.

Q. To whom?

A. To Mr. Saxton.

HOWARD J. DIFFENBAUGH,

*By Examiner by Consent.*

Subscribed and sworn to before me this — day —, A. D., 1905.

*Examiner in Chancery.*

478 EDMUND SAXTON, a witness of lawful age, called by and on behalf of the defendant, having been first duly sworn, is examined

By Mr. THOMAS:

Q. Please state your name and residence.

A. My name is Edmund Saxton. I reside at 1244 11th Street, N. W.

Q. Were you the contractor doing the work of laying the tracks of the Capital Traction Company at the time of the change from cable power to electric power?

A. I was the contractor for that work.

Q. Will you be kind enough to state how the temporary tracks were laid under that contract, including the tracks on M Street between 31st and 36th Streets?

A. I have no recollection of that particular part of the work, but I can state the general practice as to that work all over the road, during the change from cable to electric power.

Q. What was the general practice at that time?

Mr. WORTHINGTON: I object to that as being incompetent.

A. The first part of the work to be put down was the conduit between the tracks, for the cables; and during that work we laid a single temporary track and used one of the old horse car tracks for the other. When we came to the changes in the conduit track itself I am inclined to think we did have double temporary tracks in most places.

Q. The question is how these temporary tracks were laid. Do you know that?

479 A. Yes, I know that the rails were bolted in the joint plates, and a tie rod placed every fifteen feet, and that the track was laid loosely upon the pavement. In some extraordinary cases, where there was an extraordinary tendency to slip or slide we put in an occasional spike; but those places were very few and far apart.

Q. What use, if any, did you make of wooden struts?

A. Sometimes, where the gutters sloped suddenly to the curbstone we put in a short piece of wood, about 2 by 4, between the curbstone and the joint plate, to keep the track from sliding into the gutter.

Q. Do you remember whether you had occasion to supply quantities of spikes for the purpose of spiking down this temporary track?

A. I remember that we always kept a stock of spikes on hand out at the yard, and I think a few were issued to the men, that they might have them in case any such emergency arose as I just spoke of.

Q. Did you supply those spikes for the purpose of spiking down the tracks?

A. Yes, in these exceptional cases.

Q. I mean generally.

A. Not generally.

Q. You have spoken of this being the practice. Is that your recollection of the way in which this temporary track was laid; or is it simply your recalling what the method should have been?

A. I recall very distinctly what the method should have been.

I think it is safe to say that we did pretty nearly what  
480 we ought to do about these things.

Q. When was this change made from cable to electric power?

A. It began about November or October of 1897 and ended some time early in the year 1898. Perhaps I may say that I happened to find, in a note book, a memorandum in the temporary track note book under date of January, 1898, the very time in question which, incidentally says: Spiking we have abandoned, except where there is an extraordinary tendency to slide—or some such comment as that.

Mr. WORTHINGTON: I object to this reference to the note book as being incompetent.

By Mr. THOMAS:

Q. Did you make that entry in the notebook at the time?

A. At the time, with others scattered in the notebook about the same time.

Q. Does that entry refresh your recollection?

A. No; but my recollection is very distinct on that, because we abandoned the use of spikes as far back as the summer of 1895, when we were building the 9th Street line. We found that we could get along without them, in the summer of 1895.

Q. Were you called on by the Capital Traction Company or by the District of Columbia, or by any other person, to repair M Street between 31st and 36th Street, because of any injury that was done to that street by reason of the laying of the temporary track on M Street?

A. No, sir; I heard no talk at that time, of any damage to the pavement.

481 Q. Was there any complaint made?

A. No; I heard none.

Q. Where is the memorandum book you refer to?

A. I have not got it here.

Q. Can you produce it?

A. Yes.

Mr. THOMAS: This book will be produced at the trial if desired.

The WITNESS: You understand that I recollect very distinctly that while we were building the 9th Street line in the summer of 1895, we discovered that spikes were not necessary, even on a stone pavement, except in exceptional cases.

By Mr. THOMAS:

Q. Why do you say "even on a stone pavement"?

A. Because the track will slide more easily on a stone pavement than it will on a granite block pavement or an asphalt pavement.

Cross-examination.

By Mr. WORTHINGTON:

Q. When was the entry in the notebook, to which you refer, made?

A. In January, 1898.

Q. If you abandoned the use of spikes in 1895, how did you come to be making an entry of that kind in 1898?

482 A. I will explain that.

This note-book in which the entry occurs is a note-book entitled "Memorandum relating to temporary track." There had been no previous entry of it under that date and I made a description which, it seemed, was not in the book, as to the way the temporary track was laid, and added this observation.

Q. It was a statement about what you had done three years before?

A. It was a statement of our practice at that time in laying temporary tracks.

Q. Have you any distinct recollection about these temporary tracks on M street between 31st and 36th Streets?

A. No; I have no particular recollection of those.

Q. You do not know to what extent the use of spikes was required there to prevent this exceptional slipping?

A. No; but I know that places of that kind were rather rare. They were generally around the catch basins, where there was a steep descent from the pavement to the curb.

Q. Do you know that on M Street, on the south side, parts of it between 31st and 34th Streets, there is quite a slope from the middle of the road down to the curb?



A. I have no present recollection of that.

Q. When these struts are put in, are they not likely to be knocked out by wagons passing?

A. Occasionally.

Q. They were not fastened in any way?

A. I think not.

Q. Then if they would get knocked out the track would slide, in such a place as that?

483 A. It would very soon be replaced, if one was knocked out. We had track walkers going up and down the track.

Q. Who was your track-walker between 31st and 36th Street?

A. I don't remember their names.

Q. They would have more definite and certain knowledge about this matter than anybody else?

A. The laborers?

Q. I mean the man who was right on the street at the time.

A. I think the man who would have the clearest recollection of it is, perhaps, the man who is always engaged as the leader of a gang in laying tracks, and a man who is not now in town. A man named George Evans.

Q. He was a colored man?

A. Yes, a colored man.

Q. Is it not a fact that sometimes the railroad men themselves would drive a spike in to keep the track from slipping?

A. I think they might do that occasionally.

Q. You knew they did do that sometimes?

A. Yes, I think they did.

Q. What was the size of these spikes you put in?

A. I think they were about half inch by three and a half or four inches, with a square, counter-sunk, head.

Q. Three or four inches long?

A. Three or four inches long, I think, and nearly a half inch, or perhaps quite a half inch, with a square counter-sunk head.

484 Q. How thick was the rail where the spike hole was?

A. About three-eighths of an inch in the thinnest part.

Q. Then if spikes had been used in fastening these rails to the asphalt there would have been a hole three or four inches deep made?

A. Yes; I think so. It would have gone quite through the asphalt and struck the concrete.

Q. Do you remember on which side of the street, or whether it was on both sides, the temporary tracks were laid between 31st and 36th Streets?

A. I cannot recall the situation there.

Q. What was the occasion of your abandoning the use of spikes in 1895?

A. Before that, on an asphalt pavement, the only spikes used were two in the joint plates, that fastened the rail into the joint plate. Those were the only two used at that time. It suddenly occurred to us to use a certain square headed bolt instead of that spike, to be put down through the joint plate and fasten the rail on to the joint plate. The spikes were no longer necessary after that. There never was a continuous row of spikes along the rail. Never was every hole in the rail filled with spikes, or anything of that sort.

EDMUND SAXTON,

*By the Examiner by Consent.*

Subscribed and sworn to before me, a—, this — day of —,  
A. D., 1905.

— — —,  
*Examiner in Chancery.*

485 ARTHUR G. DUNN, a witness of lawful age, called by  
and on behalf of the defendant, having been first duly  
sworn, is examined:

By Mr. THOMAS:

Q. You are employed by the District of Columbia, I believe.

A. Yes, sir.

Q. In what capacity?

A. As general inspector of sewers.

Q. How long have you been so employed by the District?

A. With the exception of being off once or twice I have been employed for about twelve years. Of course I have been off on different work during that time.

Q. During the time that the change from cable to electric power was being made on M Street between 31st and 36th Street, did you have anything to do with the work?

A. I was assistant engineer for the Capital Traction Company at that time.

Q. Do you remember at what time it was they were making that change?

A. It was in the winter of 1898.

Q. Do you remember anything about the temporary tracks that were laid on M Street between 31st and 36th Street?

A. I remember the general way the work was done.

Q. I do not suppose you have had occasion to recall that work, since that time?

A. No, sir.

Q. I wish you would give us, according to your best recollec-

tion, a description of how that work was done.

486 A. To the best of my recollection we had a single temporary track and used one of the permanent tracks for the cars—working on one track at a time.

Q. How were those temporary rails laid?

A. The rails were bolted together at each joint and held to a proper line or gauge by tie rods.

Q. In speaking of their being bolted together at each joint, you may state whether or not those bolts went into the pavement.

A. No, sir; they did not. The bolts had counter sunk heads on them and were fitted on to the joint plate, in the bottom of the plate, with the nut projecting above.

Q. Do you know anything about tie rods?

A. We used tie rods.

Q. How far apart were the tie rods?

A. I could not say exactly how far they were apart at that place, but there were enough of them to hold the track together, so that it would be one structure.

Cross-examination.

By Mr. WORTHINGTON:

Q. Did you have to do with these temporary tracks all along the line or only with part of it?

A. I represented the chief engineer over the entire system.

Q. The change was made from the Navy Yard to the Aqueduct Bridge?

A. Yes, sir.

Q. And from the Seventh Street wharf out?

487 A. Not on the 7th Street Line at this time. That was later. It was the 14th Street line.

Q. What you are telling us is about the general way in which the work was done over the whole system.

A. Yes, sir.

Q. Do you now recollect about particular parts of the work, and just how it was done?

A. I don't know exactly what you mean.

Q. Do you remember, for instance, whether at any part of the work there was any trouble with the tracks sliding.

A. They used to have some trouble occasionally; yes, sir.

Q. At what places did you have that trouble?

A. That trouble was apt to occur any place. The tracks were temporary, and they had men constantly walking the tracks to keep them in shape.

Q. If a car would come along and make a track slide the

men would go along and push it into place again—you do not mean that; do you?

A. Sometimes the car would jump the track on a curve, and sometimes the track would slide, as you say.

Q. What did you do about the sliding. Did you let it slide?

A. We would keep it in position.

Q. How?

A. They would move it back and line it up.

Q. You would let it slide and put it back again and let it slide again and put it back again, and so forth?

A. That was not a regular thing. It was occasionally that such things would occur.

Q. Where the track had the sliding habit, did you do anything to stop it?

488 A. I was not on the temporary track, but I was over it and just observed it as I passed by. They may have spiked it. I won't say that they did not, at this point.

ARTHUR G. DUNN,

*By the Examiner by Consent.*

Subscribed and sworn to before me this — day of —, 1905.

\_\_\_\_\_,  
*Notary Public.*

489 GEORGE G. BURNS, is recalled for further direct examination.

By Mr. THOMAS:

Q. You were asked at the last session to make a computation of the percentages of work done under the guarantee in these two contracts, and the work taken up and replaced, taking these two maps which are in evidence as the basis of your computation. I will ask you whether you have made such a calculation.

A. I have, sir.

Q. Have you that computation before you?

A. I have.

Mr. THOMAS: I offer this computation in evidence.

The above mentioned table is filed herewith and marked "Exhibit Burns No. 1."

490 Q. Please explain this statement.

A. I have taken the total surface of pavement under the guarantee as the basis for working the percentages.

Q. Where did you get the total surface under the guarantee?

A. The total surface under the guarantee is taken from the vouchers on file in the office of the Engineer of Highways.

Q. Now proceed.

A. I have divided the work into two contracts, as that was the way it was repaired, the first one being repaired by the Cranford Paving Company between 31st and 32nd Street, and the original vouchers called for 734.49 square yards as being laid and being under the guarantee. When we replaced that there were 97 yards from cuts made by the Capital Traction Company, and that was deducted from the total amount and charged direct to the Capital Traction Company. It amounted to 13.2 per cent of the portion between 31st and 32nd Streets, the total amount under the guarantee. Minor repairs, that is plumber cuts and different things where cuts were made and we did not know to whom to charge them amounted 55.74 yards, or 7.6 per cent of the total amount under the guarantee. The charge to the Barber Company was 521.16 yards, amounting to 70.9 per cent of the contract—giving a total of that taken up and replaced of 673.9 square yards, or 91.7 per cent.

The same explanation applies to the work between 33rd and 36th Streets, under the first contract, and to the work  
491 between 31st and 32nd Street and between 32nd and 33rd Street under the second contract.

Cross-examination.

By Mr. WORTHINGTON:

Q. I observe that below the figures to which you have referred there is something about portions tinted red and blue. Explain these entries.

A. The portions that are tinted red in pencil were taken from marks made by some one on this plat.

Q. From colorings made by some one?

A. Yes, sir; after it passed through my hands, and that was worked out from a scale only. I have got a note to that effect at the bottom. "Approximate only; scale off of plat." There were no dimensions to that, and the only way to get at it was to scale it.

Q. You do not know, of your own knowledge, what the red and blue portions indicate, but you have given us the percentages which they are to the whole work under the respective contracts?

A. Yes, sir.

Q. Take the first item under the first contract of 743.49 total surface under guarantee. Does that include work that

was done for the Capital Traction Company in laying the original pavement?

A. Yes, sir; it includes all of it.

Q. The Capital Traction Company paved between its tracks as the law provides, and the contractor for the District  
492 did the rest of the paving on the street?

A. Yes; the District paved from the car-track to the gutter. That includes all the asphalt surface on a six-inch base. There was some asphalt surface without base, but that is not included, because that part we did not distribute.

Q. On both of these maps I observe that the colored portions are outside of the space occupied by the railroad company.

A. Yes.

Q. Then, in making your computation, why do you include the space between the railroad tracks?

A. It does not include the space between the railroad tracks but does include from the tracks to the gutter only.

Q. Does this amount of 734.49 square yards include any work between the tracks?

A. None between the tracks or two feet adjacent to the tracks, which were charged to the railroad company. The railroad company is chargeable for two feet outside of the track.

Q. Then some portions of this work which have been replaced and charged to the contractor, under the guarantee, or outside of the railroad tracks, and within two feet of it?

A. Yes, sir.

Q. Can you tell me how much there is of that?

A. No; but there is quite a considerable portion of it. You can look on the map and see. That brown portion on the map has not been distributed. All that tinted in brown has not been distributed.

493 By Mr. THOMAS:

Q. To which map do you refer now?

A. The map of the second contract (referring to the map which gives the space between 31st and 33rd Streets.)

By Mr. WORTHINGTON:

Q. Is not that true also of the other map which runs from 31st to 36th Street?

A. The portion which was not touched was not tinted at all. It is just shown plain.

Q. In both maps it appears that a very large proportion of the work was next to the railroad tracks, and within two feet of them.

A. It would not be a very large proportion, if it was only one-eighth of the width of the roadway.

GEORGE C. BURNS,  
*By the Examiner by Consent.*

Subscribed and sworn to before me this — day of —, A. D., 1905.

*Examiner in Chancery.*

The further taking of these depositions was thereupon adjourned until Thursday, March 9th, 1905, at three o'clock p. m.

494 WASHINGTON, D. C., *March 9th*, 1905—3 o'clock p. m.

Met pursuant to adjournment.  
Adjourned subject to agreement.

WASHINGTON, D. C., *March 24th*, 1905—4 o'clock p. m.

Met pursuant to agreement.  
Present on behalf of the complainant, Mr. WORTHINGTON.  
Present on behalf of the defendant, Mr. THOMAS.

Whereupon, CHARLES E. MUNROE, a witness of lawful age, called by and on behalf of the defendant, having been first duly sworn, is examined,

By Mr. THOMAS:

Q. Will you be kind enough to state your profession, and how long you have been engaged in the practice of it?

A. I am a chemist, and have been engaged in the practice of my profession since 1871.

Q. Will you be kind enough to state what official position, if any, you occupy either as a lecturer or chemist, in any educational or other institution in the District?

495 A. I am head professor of Chemistry in George Washington University.

Q. How long have you been engaged in lecturing on the subject of chemistry?

A. I have been engaged since 1871. I taught at Harvard University from 1871 to 1874, at the United States Naval Academy from 1874 to 1886, at the United States Naval Torpedo Station and War College from 1886 to 1892, and I have been engaged with the Columbian University, now George Washington University, as Professor of Chemistry and Head Professor of Chemistry from that time to the present.

Q. Besides your employment in educational institutions,

will you be kind enough to state whether you have been engaged in the practice of your profession; and if so, for how long?

A. I have been engaged in chemical practice, as an analyst and consulting expert, during this entire period, from 1871 to the present time. I have also been engaged, and am at present employed as the expert special agent of the United States Census, in charge of the chemical industries of the United States.

Q. Will you be kind enough to state whether or not you have been called upon to testify as an expert in chemical matters, in the courts, and whether your testimony has been received as that of an expert chemist?

A. I have been called to testify as an expert, and have testified as an expert in a very large number of issues before the courts.

496 Q. Will you be kind enough to name some of the cases in the District of Columbia in which you have testified, if you now recall any?

A. I have testified in the Knox case.

Q. You mean the case growing out of the Knox fire?

A. Yes, sir; growing out of the Knox fire. I do not remember the titles of these cases. I testified in the case of Milton C. Mitchel vs. The Potomac Fire Insurance Company. I testified in the case of Oesler vs. The Standard Oil Company. I testified in the case of the United States vs. Holden. I testified in an early suit against the gas company where there was an explosion in the purifying house, which occurred about 1894 or 1895. I have also testified in many cases growing out of applications for patents and their infringements. These are some of the cases in which I have appeared.

Q. Did you make any examination of a pavement, which is the subject of consideration in this case, located on M street between 31st and 36th streets, northwest; and if you did so, please state how you came to make an examination and investigation into the subject?

A. I have examined the asphalt pavement on M street between 31st and 36th streets, and did so at the request of the Washington Gas-Light Company, who understood that there was an issue growing out of it, it being alleged that the pavement was destroyed by the action of coal gas.

Q. What experience have you had in the examination of pavements alleged to have been impregnated with coal gas.

A. As I recall it, it was in the middle of the year 1896 that my  
497 attention was drawn particularly to the matter, I being called upon by the Washington Gas-Light Company to appear at an examination of the pavement on Pennsylvania Avenue near Ninth street, which, it was alleged, had been destroyed by coal gas.



Q. Describe the conditions you found there?

A. When I arrived the openings in the pavement had already been made and excavations were conducted to bare the main, in order to search for leaks in the main. As I examined the pavement I observed that further along it was in rather a bad condition. It was wearing away, disintegrating, and I noticed cracks in it. My attention was called to cracks in the pavement.

Q. What was the character of the cracks?

A. They were parallel cracks in the pavement.

Q. Proceed.

A. At the same time I noticed that when the pavement was taken up it was quite wet, and that the location was a wet location. A search was made with great thoroughness to ascertain if there was any gas leak; but none was found.

Q. Could you discover that the disintegration of this pavement was, in any manner, attributable to the presence of illuminating gas in it?

Mr. WORTHINGTON: I object to the question on the ground that the witness should state his conclusions in his own way, without being led.

By Mr. THOMAS:

Q. Please state your conclusions in your own way, respecting what you discovered in regard to illuminating gas,  
498 and its action on the pavement you have mentioned?

A. From my observation as made at that time I saw nothing to warrant the charge that the disintegration was due to coal gas.

Q. When you speak of "coal gas" do you mean illuminating gas?

A. I mean such gas as is supplied for illuminating purposes in the mains throughout the city.

Q. To what was the disintegration of the pavement you have just mentioned, due?

Mr. WORTHINGTON: I object to that question on the ground that it does not appear the witness is qualified to express an opinion on that subject.

A. At that time I did not form a definite opinion; but from my subsequent observations and experiments which I have made I feel quite convinced that the disintegration was due to water.

Q. Did you make any examination of the pavement on 11th street, near the corner of Pennsylvania Avenue?

A. I did.

Q. What did you discover there, and when did you make the examination?

A. It was made in the fall of 1901, as my memory serves, and I was present there at the removal of the pavement.

Q. What was the condition?

A. The conditions there were that the pavement was pretty well worn in spots, and there were some fissures in the pavement. The pavement, when it was taken up, was upon a wet foundation. There also the search was made for gas and a leak was found.

Q. Will you be kind enough to state whether there was any disintegration of the pavement on 11th street near Pennsylvania Avenue, which you have just described, and what that disintegration was due to, if you can say?

A. The pavement was disintegrated; and I am of the opinion that it was due to the action of water upon the pavement.

Q. When was your next experience with reference to asphalt pavements in this city?

A. Having been called in, from time to time, in this matter, my attention was fixed upon the subject to an extent, greater than it had been prior to having been called specifically to look into this case I have spoken of; although I had before heard that it was alleged that illuminating gas or coal gas disintegrated pavements. So I observed pavements, from time to time, and do still, as I am going about the city. I have noted the presence of the cracks, being particularly interested in that matter, since it was alleged that the character of the cracks was sufficient to indicate the particular cause of the disintegration. It was this that attracted my attention and about which my observations more particularly were made.

Q. What do you say as to gas being the alleged cause of these cracks?

Mr. WORTHINGTON: I object to that question because it has not been sufficiently pointed out here to what cracks the witness is referring or where they are, and because there has been nothing shown to justify the giving of an opinion by the witness on this subject, which is of any value.

By Mr. THOMAS:

Q. Were those cracks which you observed the so-called parallel cracks?

A. I observed parallel cracks.

Q. It has been testified in this case by Mr. Richardson that these parallel cracks indicated the presence of gas.

A. It has.

Q. Will you be kind enough to state what your opinion and observation is, on that subject?

A. My observation has been that parallel cracks are to be found where there is an odor of gas attached to the asphalt, and that parallel cracks are to be found where there is no gas odor; that where there is a gas odor attached to the asphalt, cracks of an entirely different characteristic may be found, that is, the so-called alligator skin shaped cracks occur likewise in asphalt pavements to which there is no odor of gas. My conclusion therefore is from these observations, that the form of the cracks does not indicate that the cracking has been brought about by the action of coal gas or of illuminating gas upon the pavement.

Q. Were you present when any samples were taken from the M street pavement, about which there is an investigation now being made in this suit?

501 A. I have been present when samples were taken from the M street pavement, during this suit.

Q. Was anyone present with you?

A. Yes.

Q. Who was it?

A. Mr. Dow was with me.

Q. Can you give us the time when the samples were taken?

A. In June and in September of 1904.

Q. What did you find respecting the M street pavement and the samples from it, respecting the odor of gas and moisture?

A. I found in the case of the samples that were taken that, in some instance-, there was an odor of gas adhering to them; and that in others there was not; that in all instances the samples were wet, and in some instances they were so soft that the mass could be molded between the fingers as it was taken from the pavement.

Q. What experiments had you made, prior to 1902, with asphalt, by exposing it to water, to determine the action of water on it?

Mr. WORTHINGTON: I object to evidence as to experiments, unless it should appear that the experiments were made before the question arose as to the cause of damage to the M street pavement, involved in this suit.

A. Prior to 1902 I made experiments in exposing asphalt to water, with the double effect of collecting the gas which came off through the water from the asphalt as it was exposed  
502 in it. Some of these experiments were made with Mr. Dow, and others were made by myself. They were made about 1901.

Q. What were the results of those experiments?

A. In the experiments, in certain instances, we obtained gas from the pavement as it was enclosed in the water, and at the same time the pavement would undergo more or less of disintegration.

Q. What was the action of the water on the pavement, in your opinion, as demonstrated by these experiments?

A. My opinion is—and I desire to state that it is supported by more recent experiments—that the pavement was disintegrated by the water.

Q. With what asphalt were those experiments made?

A. They were made with the pavement.

Q. The Washington city asphalt pavement?

A. Washington city asphalt pavement.

Q. Do you know what kind of asphalt composed those pavements?

A. I do not positively know the kind of asphalt of which the particular pavement on 11th street, which was the particular one used, was composed.

Q. From your experiments made in 1902, and your subsequent experiments, will you be kind enough to state what the effect of gas alone is upon asphalt pavements?

A. My observation is that gas alone produces a softening effect. In the experiments I have made, where the pavement has been exposed to coal gas alone, the broken surfaces  
503 have become glazed over and made brilliant by the asphalt, as it has been softened, and enclosed the sand grains which were before exposed.

Q. What do you mean by broken surfaces which have been glazed over?

A. I am referring to the experiments made in the laboratory with a piece of the pavement which had been broken off, as a sample, and was detached from the mass. The sandy particles were exposed on the fractured surface; and by this action of coal gas upon the asphalt these sandy particles became glazed over, and the whole surface instead of having an earthy lustre has a brilliant or vitreous lustre.

Q. Is that or not an indication of a condition which shows the presence of gas, and has it any effect on the practical value of the pavement?

A. In my judgment it has no objectionable effect on the pavement; but on the contrary I think it would rather tend to protect the pavement.

Q. When you say that gas softens a pavement, in the manner you have mentioned, will you be kind enough to state whether or not, according to your observation and experiments, that condition is permanent or temporary?

A. The action is temporary.

Q. How long have you been familiar with gas-making and distribution?

A. At Harvard, among other topics, I was called upon to teach chemical technology, beginning about 1872, and gas-making was one of the subjects that I taught in that connection.

I have since continued to teach chemical technology.  
504 While stationed at the Naval Academy about 1874 and 1875 I was put in charge of the testing of the gas manufactured at the plant within the academy grounds, and was called upon to advise in regard to the operation of that plant. From that time on I have had frequent connection with gas matters, which has led me to examine gas plants, and the distribution of gas; so that, practically, I have now for over thirty years had a connection with the subject.

Q. Will you be kind enough to state whether it has been practical, during the last thirty years, to completely prevent the escape of gas from mains in city streets?

A. It has not.

Q. Be kind enough to state why that is so?

A. In the first place it is extremely difficult to get an absolutely tight main, that is, a gas-tight main in all the joints, although they may be leaded absolutely gas tight. In the second place, the pipes which are imbedded in the soil are distributed over considerable areas of ground of different characters, part of it being quite swampy, and some of it filled land, and land where there are springs, which is subject to all the accidents of nature, by which the joints and sometimes the pipes themselves, may be broken. This may be particularly the case at the junction between the smaller pipes for house distribution and the mains that give the larger service. We have the constant chance of the opening or more or less of the small fissures through which the gas can escape.

Q. Has it been a known fact that there would be a  
505 certain percentage of gas escape from the mains in city streets; and if so, for how long?

A. It has always been known, since mains have been laid.

Q. Did you ever have any occasion to investigate the percentage of loss?

A. I have collected the data in that matter at different times, and believe that I have a reference which I published earlier, in regard to that matter.

Q. Will you give us a reference to that?

A. I have, in my address as the president of the American Chemical Society, delivered in January, 1899, this statement regarding leakage from gas mains.

"The extent of this leakage from mains in New York City

was discussed in a legislative investigation some nine years ago, and while the chemist of the health department claimed that 10 per cent of the entire annual product or one thousand million cubic feet escaped, the gas company's representative denied that more than one hundred million feet were lost in each year. W. C. Holmes & Company (Instructions for the management of Gas Works, page 41, Lond. 1870) gives the allowed leakage as 5 per cent, and the average leakage as 10 per cent, while H. Tobey, in his paper on Elusive Leakages from Mains and Services (Am. Gas Light, J. 64-767, 1896) which was warmly discussed by the Gas Association before which it was read, shows that the condition still exists, and he gives illustrations showing the danger consequent on leaving abandoned sewers in place."

506 Mr. WORTHINGTON: I object to this answer on the ground that it is only a recital of what has been said by other people.

By Mr. THOMAS:

Q. Will you please state, from your experience of thirty years in regard to gas matters, as you have described it, and from your investigations of the literature on the subject, whether there has been any known method which would make it practical to absolutely prevent the escape of illuminating gas from gas mains and gas service pipes in city streets?

A. From my experience and my knowledge of the subject, gained by reading and research, I have to say that there is no means by which the escape of gas, under these circumstances, can be absolutely prevented; and that in the management of gas works and in the accounting, such leakage must be taken into account.

Q. Will you be kind enough to state, from your experience as above mentioned, whether there is any known method whereby the escape of gas from the mains and service pipes in city streets, can be prevented by the use of care and diligence?

A. It cannot be absolutely prevented, even with the utmost care and diligence.

Q. Have you or not made any comparative experiments respecting the action of water on different asphalts?

A. I have.

Q. With what sort of asphalts?

507 A. With Trinidad asphalt and with Cuban asphalt.

Q. From whom did you procure the samples of Trinidad asphalt?

A. One of the samples is one which I have had in my possession for many years. I am unable to say just the source

from which it was obtained. The second sample I obtained from the exhibit of the Trinidad Asphalt Refining Company at St. Louis Exposition. The third sample of Trinidad asphalt that I have I obtained from the exhibit in the National Museum.

Q. Presented by whom?

A. It was marked as having been presented by Clifford Richardson.

Q. How did these respective samples of Trinidad asphalt, when exposed to the action of water, act?

A. They behaved practically alike.

Q. With what other asphalt did you make experiments respecting the affect of water thereon?

A. With Cuban asphalt.

Q. Will you please describe the difference in the action of water on Trinidad asphalt; if any, from that which it had on Cuban asphalt?

A. The action of the water on each of these Trinidad asphalts was to very shortly impart to them a reddish color, a yellowish to brick red color, while at the same time these specimens became porous, particularly as viewed under a lens, and a little flocculent matter was produced upon the surface. At the same time the water became discolored, and when that water  
508 was filtered off and evaporated to dryness, it gave a residue, which, on ignition, burned partly away and left some residue which contained iron.

The exposure of Cuban asphalt to water, under similar conditions, produced no such change in the color, and no such disintegration was to be observed. It is true that the water was discolored to an extent, and that it gave a similar residue, but not as marked a residue as in the case of the Trinidad asphalt. The action of the water was sufficient to discriminate at once between these samples, so as to distinguish the Trinidad asphalt from the Cuban asphalt, as the Trinidad was so readily disintegrated by water.

The further taking of these depositions was thereupon adjourned until Monday, March 27th, 1905, at 3 o'clock p. m.

509 WASHINGTON, D. C., *March 27, 1905*—3 o'clock p. m.

Met pursuant to adjournment.

Adjourned by consent until March 29th, 1905, at 3.30 o'clock p. m.

WASHINGTON, D. C., *March 29th*, 1905—3.30 o'clock p. m.

Met pursuant to adjournment.

Present on behalf of the complainant, Mr. WORTHINGTON.

Present on behalf of the defendant, Mr. THOMAS.

Whereupon, CHARLES E. MUNROE, resumed the stand for further direct examination,

By Mr. THOMAS:

Q. May I ask you whether you have any sample with you showing the presence of gas, without the parallel cracks?

A. I have.

Q. Will you please produce it, and tell us what is demonstrated by that sample?

A. I have here a piece of asphalt pavement which still possesses the gas odor, and which was taken from a spot where the fracture was of the kind known as resembling alligator skin.

510 This is one piece of the scale, very nearly of the shape it originally had in the mass, having been pried out with a knife.

Q. Did that contain parallel cracks?

A. It did not at this spot. Near by was a spot that had the parallel cracks. As I have previously stated, I have found the alligator cracks where I noticed the gas odor and I have found the parallel cracks where there was no gas odor.

Q. When did you take that sample?

A. I took that sample on the 23rd of March, 1905.

Q. From what place?

A. From I street, near the corner of Fifth, northwest. It was taken on the north side of I street about opposite 506 I street, which is on the south side of the street, the north side of the street being a park.

Mr. THOMAS: I offer this sample in evidence.

The above-mentioned sample is marked Exhibit C. E. M. No. 1.

By Mr. THOMAS:

Q. Mr. Richardson stated, in his testimony, at the bottom of page 34, that in practice it (Trinidad asphalt) is not affected by water in the street at all, unless it is submerged under it for months at a time. What have you to say about the elevated portions of M street, respecting whether or not water was present so as to submerge that part of M street?

A. In every case where samples were taken from the pavement or the pavement was exposed on its under surface, I



found them to be invariably wet, so that the samples  
511 were soaking in water.

Q. Have you ever observed, any piece of pavement taken from M street between 31st and 36th streets, described in the proceedings in this case, which was not wet?

A. I have observed none which were not wet at the time they were taken.

Q. What value do you place upon the smell of gas, as indicating the disintegration or non-disintegration of asphalt pavements?

A. In my opinion the fact that the pavement smells of gas does not indicate that the pavement is necessarily undergoing disintegration, nor does it indicate, when the pavement is found to be disintegrating, that such disintegration is due to gas.

Q. Some evidence has been given in this case of the disintegration of asphalt pavements in Chicago. What have you to say with reference to the character of the ground on which those pavements are constructed, if you know?

Mr. WORTHINGTON: I object to that, unless it appears that he knows something about the particular pavements involved, and the particular location and situation as to dampness.

A. I know that Chicago is a low-lying city, and that consequently the ground-water comes near the surface, and that the soil would be damp, as it borders closely on the lake.

Q. Mr. Dow has testified in this case respecting a patch of Cuban asphalt on M street between 31st and 32nd streets, on the north side of the street. Did you observe that piece  
512 of Cuban asphalt?

A. I observed, in the presence of Mr. Dow, a piece of asphalt on the north side of M street between 31st and 32nd streets, about opposite 3145 or 3143 M street, which was, in its appearance, unlike the mass of asphalt on the street.

Q. You may state in what condition you found that piece of Cuban asphalt.

Mr. WORTHINGTON: I object to that, because it does not appear, from the testimony of the witness, that it was Cuban asphalt, and the question assumes that it was.

A. I found this pavement beside a cut which had been made through the surrounding pavement, and which contained a pool or water or mud. The pavement was in a thoroughly sound condition. Samples were broken from it, and they found it so sound as to resist the cut with much force.

Q. When, if you can recall, did you make this examination?

A. As my memory serves me, this observation was made both in June and in September of 1904.

Q. What was being done with the surrounding pavements at the time you made these examinations, if you can recall?

A. I do not recall that anything was being done with the pavements at that particular time. As I recall it, at least with reference to the visit in September, while the pavements were being repaired on an adjacent street, the men who cut this pavement, under our observation, were called there for that purpose.

Q. I show you a sample which has been introduced in evidence marked Exhibit Dow No. 1, and ask you whether  
513 you can identify this sample; and if so, in what manner?

A. I do identify the sample, and I identify it by a mark which I have placed upon the side, my initials in blue pencil. I identify it also by the attached label describing the time at which and the place from which the sample was taken, which is in my handwriting.

Q. Does that label correctly describe the time when and the place from which the sample was taken?

A. It does.

Q. Were you present when the sample was taken?

A. I took the sample.

Q. What does that sample show?

A. The sample shows the presence of parallel cracks in the asphalt pavement, where there is no odor of gas attached to the pavement.

Q. Please smell the sample and state whether it now contains the odor of gas?

A. It does not.

Q. Please state whether it contained the odor of gas when you took it from the pavement?

A. It did not.

Q. When you took it from that pavement, did that sample give any indication of the presence of gas in it?

A. It did not.

Q. Do you know whether there were any gas mains or pipes in the neighborhood from which this sample was taken?

A. My impression is there were not.

Mr. WORTHINGTON: I object to the witness stating his  
514 impressions.

By Mr. THOMAS:

Q. From what place was it taken?

A. This was taken from Executive Avenue, south of the Treasury, between the Treasury and Sherman's statue, and rather on that side of the Avenue towards the Sherman statue.

## Cross-examination.

By Mr. WORTHINGTON:

Q. In your opinion is the presence of illuminating gas in an asphalt pavement a benefit to it, or a disadvantage or neither?

A. From such observations as I have made I believe that the presence of illuminating gas may not be a disadvantage. I do not believe that the presence is a disadvantage, and I think that it may not be a disadvantage.

Q. You mean that it will not injure the pavement at all then?

A. That is my impression.

Q. Whether it is associated with the presence of water or not?

A. Whether it is associated with the presence of water or not?

Q. Does illuminating gas escape from the pipes carrying it into houses as well as from pipes carrying it in the street?

A. It does.

Q. Is there any difference in the proportion of gas  
515 which escapes in that way, according to the length of the pipe, in a house or in the street; or, in other words, would a thousand feet of exposed pipe in a house be apt to leak about the same amount as the same number of feet in the street?

A. Proportionate to the surface of pipe exposed, I believe that the leakage would be less in the house than in the street.

Q. Why?

A. For the reason that in the house the pipes are not exposed to the many changes that they are exposed to when imbedded in the ground.

Q. You mean the joints would be more likely to be opened in the street?

A. The joints would be more likely to be opened in the street than they are in the house.

Q. Leaving out that consideration, and assume the pipes in each case are sound. I understand that it will leak some even if the pipes are sound. Is that correct?

A. That is correct, that is, if they are practically sound. I take the position that even under the best circumstances, in a considerable length of main or of service pipe, it cannot be absolutely sound.

Q. In other words there will be some leakage in the street and in the house, under all circumstances?

A. There will be some leakage under all circumstances, in the street; and there may be in the house, but not under all circumstances.

516 Q. What is the distinction you make between the non-possibility of leakage in the house under certain circum-

stances and the impossibility of the prevention of leakage in the street?

A. On account of the greater facility with which the small pipe may be made tight as compared with the large main, and also the greater facility with which the joints may be made tight throughout a length of small pipe, and what would be the case where a small pipe joins onto the large main.

Q. There is, however, some escape of gas going on in the pipes in our houses all the time?

A. That is my belief.

Q. But it is not in sufficient quantity, ordinarily, to be noticeable to the senses?

A. As a rule it is not.

Q. I suppose, as to leakage in the streets, that the longer the main stands the greater the possibility will be that there is some considerable leakage from a joint becoming loose?

A. Unquestionably, and because of the various other accidents to which the mains are exposed.

Q. For instance?

A. Well, electrolysis and corrosion of the soil, and changes in the stress by filled ground on the street.

Q. Can you give us any information as to the lifetime of an ordinary gas main, such as has been in use here for the last forty or fifty years, when laid in the street?

A. I cannot, now.

517 Q. If the appearances on the surface indicate a considerable quantity of gas coming out of the surface, how nearly could you approximate the place where the leak was by fixing the place where the gas was escaping into the street?

A. Where there is a noticeable escape it ought to be possible, and I believe it to be possible, to find the source with certainty.

Q. How?

A. One method is by driving tubes down into the soil, by which a path for the escape of gas will be provided, and by a succession of tests it is soon found where the maximum of escape occurs, and then by excavating, so as to expose the pipe, and following it along, we should find the leak.

Q. What other way would there be?

A. The only other way is by exposing the pipe originally and following on from point to point until the leak is found.

Q. Have you any experience or knowledge as to how far you will have to travel from the place where the gas escapes into the street through the pavement, to the point where it escapes from the pipe?

A. I have not. If there was any channel it might travel for some distance.

Q. It may travel a square or two, may it not?

A. Surely.

Q. So that merely exposing the pipe within ten or  
518 fifteen feet of the place where the gas was escaping through the pavement, would not necessarily disclose whether there was any leakage in the pipe or not, except where it was uncovered?

Mr. THOMAS: I object to this line of inquiry, on the ground that it does not consider the situation of M street between 31st and 36th streets.

A. No.

Q. Then where there was a noticeable escape of gas and it was sought to find and stop the leak, would you consider it a sufficient examination to uncover the pipe within fifteen or twenty feet of the place, and finding no leak there to assume it was impossible to find it?

Mr. THOMAS: I object to the question on the ground that it is a hypothetical question, not addressed to the facts in the case.

A. No.

By Mr. WORTHINGTON:

Q. Have you made any observations of the condition of asphalt pavements, where they were infected with illuminating gas, except in this city and in this District?

A. I have not.

Q. At how many places in this city, where illuminating gas was known to be present by the odor, and the pavement was disintegrating, have you made such observations, leaving out M street for the present?

A. I have made observations where the odor of gas was to be observed in the pavement, in at least three other places, besides M street.

519 Q. Places where the pavement was disintegrated?

A. At places where the pavement was cracked, and more or less disintegrated.

Q. Where are those three places?

A. One place was on 11th street near the corner of Pennsylvania Avenue. The second place was on I street, from which this sample (C. E. M. No. 1) was taken. The third place was in front of the Arlington Hotel, where the pavement was cracked, and the odor of gas is attached to the pavement, and where I found no noticeable disintegration.

Q. Is there any other place where you have observed the odor of gas in the pavement, where there was no disintegration?

A. I do not recall any.

Q. The odor of gas was quite prevalent on M street when you made your examination there?

A. In places, and not in places.

In various places scattered along, there were places where there was the odor of gas, and other places where there was disintegration and no odor of gas.

Q. But wherever there was an odor of gas on M street the pavement was disintegrated; was it not?

A. My impression is that was not the case.

Q. To what extent did you observe places over there where there was an odor of gas and no disintegration?

A. As my memory serves me now, there was an odor of gas attaching to this pavement to which I have recently  
520 testified, which was in a sound condition, in front of 3145 or 3146 M street.

Q. At any other place?

A. I will not attempt to recall. I do not recall.

Q. If there was any other you do not remember it now?

A. I have an impression; but I do not recall the distinct instances. I have a distinct impression of a number of cases of pavement in good condition in the midst of that which smelled of gas, on M street.

Q. On M street were the portions that were in good condition taken up?

A. I do not recall that any of this was taken up except the samples that were taken as we were making the inspection. I do not know that any of it has been taken up and replaced since.

Q. How large was the place in front of 3145 or 3146 M street, where you observed the smell of gas and no disintegration?

A. I should think it might have been, judging roughly, a patch of 18 inches or 2 feet wide, and 3 feet or more in length. As I recall it, it ran parallel with the curb, in the gutter.

Q. Was that the patch where you were informed Cuban asphalt had been used?

A. It was.

Q. Then, except in that instance on M street, you cannot recall any place where the smell of gas was in the pavement and there was no disintegration?

A. I cannot recall it positively.

521 Q. Do you know how long that pavement had been down?

A. I do not, of my own knowledge.

Q. As to the pavement in front of the Arlington Hotel, when did you first observe the smell of gas there in connection with the place where the cracks are?

A. I think it was in June of last year that I noticed the

smell of gas, and I had, prior to that time, noticed the cracks.

Q. Did you smell the gas as you walked over the pavement, or did you cut up samples?

A. I took a sample, and that is what I had not been doing, as I felt that I had no right to cut samples up from the pavement; but in this case I took a piece of it.

Q. A single sample?

A. I only took out a little bit.

Q. About how large?

A. A tiny bit, that I could smell.

Q. And that was in the midst of a place where there were parallel cracks?

A. It was.

Q. How deep did you go?

A. Only into the outer skin of the pavement, perhaps an inch and a half.

Q. How large a space there is occupied by the parallel cracks to which you refer?

A. At present there are very few to be observed. I have recently found that they have healed up to a large extent. During that time and during the summer, as I observed them, and in the

522 fall I noticed quite an extent of parallel cracks, beginning nearly down to H street and running up for at least 20 feet I should say, more on the east side. Then there

were others noticed further over toward the Arlington. They were confused with what, at first, were very curious looking cracks or impressions, which I afterwards discovered were made by the horses' hoofs and by the carriages which use that place in front of the Arlington Hotel to such an extent.

Q. Upon what do you base your conclusion that the pavement where these cracks were was not disintegrated below the surface?

A. For the reason that it withstands the wear of traffic so completely and heals up so thoroughly as it does.

Q. Do you know what kind of asphalt has been used there?

A. I do not.

Q. Can you tell Trinidad asphalt from any other kind of asphalt, by the looks of the pavement in the street, or samples taken from it?

A. I have not been able to do so; but during the recent wet weather I have found that many of the pavements which I scraped while moist have the same appearance as the Trinidad asphalt that I have submerged in water, and the pieces of pavement from M street; and the resemblance is such as to lead me to believe that the pavements which exhibit such appearances are made of Trinidad asphalt.

Q. Have you made any laboratory experiments as to the effect of the combined action of water and illuminating  
523 gas on asphalt pavement?

A. I have placed specimens of asphalt pavement in jars, covering one of the samples with water and covering a sample with water in another jar, and taking a third sample in a similar jar, and connecting those two to the gas pipe, so that a continuous flow of gas would pass through the bottles. The asphalt out of the presence of water, and the asphalt in the presence of water would both be subjected to the action of the coal gas, while at the same time the other sample would be exposed to the action of water without the coal gas.

Q. When did you do that?

A. Last September.

Q. How long did you continue those conditions with your three samples?

A. The coal gas was passed through for some four weeks, as I remember it, and then, in that condition the bottles were closed tight, so that the gas might remain in there, and that still continues.

Q. Where are those bottles now?

A. In my laboratory.

Q. How long have they been closed up?

A. Since last October.

Q. What is the object of keeping them still closed up? Were they made with reference to this investigation?

A. They were made for my own information.

Q. Are the specimens visible through the glass?

A. They are.

524 Q. Is the glass ground glass?

A. It is transparent glass, and the specimens are visible.

Q. Would you have any objection to bringing those samples, or having them brought down at the next meeting, so we can see them?

A. I would not.

Q. How many samples did you see taken up from the M street pavement in June of 1904?

A. Seven or eight.

Q. Can you tell us from what place on M street they were taken?

A. If I may examine my notes I think I can.

Q. You may examine them.

A. One sample was taken in front of 3530 M street. The second sample was taken from the north side of M street 20 feet west of 31st street. Another sample was taken from the south side of M street 20 feet west of 35th street. The fourth



sample was taken opposite 3116 M street, on the south side. The fifth sample was taken opposite 3528 M street, on the north side of the street. Those are the only ones I have recorded from M street, at that time.

Q. Did you take any samples in September, and if so from what place, if you can tell?

A. I have here one in July 14th, 1904, taken from the north side of M street opposite 3143. I also have a sample taken July 27th, 1904, beginning at a point west of 35th street. I have one taken September 13th, in front of 3139 M street, and  
525 one September 13th in front of 3145 M street. Those are all.

Q. Where did you obtain the samples of asphalt pavement which you put into the three jars you referred to a moment ago?

A. From M street—I think that the mark is on the bottle as to where they came from. I would not be sure about their being from M street; but it is on the bottle. It was either from M street or New York Avenue.

Q. Were those samples taken from sound pavements or dis-integrated pavements?

A. My impression is that those samples were from New York Avenue, and were of sound pavement. I did not use the M street pavement because of the fact that it was alleged to be unsound. At that time I found they were making repairs to the railroad on New York Avenue and had cut the asphalt pavement. It appeared to be perfectly sound, and I got samples from it. I feel certain that it was asphalt from the New York Avenue pavement which I used in these experiments.

Q. From what place on New York Avenue?

A. Right at the corner of 15th street and New York Avenue.

Q. Between 14th and 15th?

A. Right near the corner of 15th.

Q. Near the Trust Company corner?

A. Yes, near the Trust Company corner. As I passed there every day, I noted, at this time, that they were making  
526 changes in the pavement, and I secured the samples.

Q. According to my notes you said, on your direct examination, that gas alone produces a softening effect on asphalt pavement. Is that correct?

A. That is correct.

Q. What do you mean by that?

A. I mean to say that in this sample I noted that the asphalt was so softened as to flow over and enclose the grains of sand which had been exposed when the first fracture was made.

Q. Was that sample where you used gas alone and no water?

A. Yes, where I used gas alone and no water.

Q. Do you think it is any injury to it to soften it?

A. I think that question has to be answered with qualification. I can recognize that if a pavement be greatly softened it would be injured, and that if it be softened a little it might not be an injury to the pavement. In fact, when a pavement is in use and being repeatedly rolled by the action of the wheels and horses in the traffic, when it is being kneaded, a slight softening may not be a disadvantage. On the contrary it might be rather an advantage, especially in the case of pavements that are sometimes overhard.

Q. How long a time did it take for your illuminating gas to soften the sample of asphalt pavement you refer to?

A. This specimen was exposed just before I went to  
527 the Exposition.

Q. To the St. Louis Exposition?

A. Yes; and I was gone about a week. On my return I noticed the glazed effect—that was within a week.

Q. Do you think that if gas would soften a pavement in a week, if the application of the gas should be continued for several years, let us say, that it would not soften it any more or have any further effect on it?

A. I think it unlikely, if the pavement is exposed so that the gas can escape from the surface, as it does, that the effect would become very appreciable. The circumstances are that the pavement is exposed to the air, and if the gas permeates it there will be volatization and the escape of the gas, so that I would not expect the action would be a cumulative one.

Q. Have you any experience in that direction, with reference to gas attacking pavements on the street?

A. Only as I have observed the pavements which are alleged to have been disintegrated by gas, and which have had the gas odor attached to them. There has been no evidence that that action was due to the gas, since in every instance I found water present, and the condition in which I found this softening effect was when water was not present.

Q. Do you know of any pavement in Washington, where moisture is not present, more or less?

A. I do not.

Q. Have you any experience as to the effect upon asphalt pavement produced by gas escaping from below the  
528 street, under the surface of the asphalt pavement, and working its way through the concrete foundation—as to whether it would injure the pavement before there would be any appearance on the surface?

A. I have not. I do not know.

Q. You do not know whether it would or not?

A. I do not know.

Q. Is there anything in your knowledge or experience which

would indicate that it is not possible for gas to come up in that way through the concrete and spread out under the pavement for a great many square yards, and the injury done before there would be any escape of gas at all?

A. If the pavement were well made and properly laid, I do not see how that would be possible.

Q. Why?

A. Because there ought not to be such interstices below the pavement.

Q. You think the foundation should be such that gas could not get through it?

A. I understand that you mean the gas comes through the concrete foundation and then spreads out under the asphalt surface?

Q. Yes.

A. The concrete should be such that gas could not go through the base. Then if the sheet were properly laid there ought not to be an opportunity for spreading. The spreading would indicate that the sheet was separated from the concrete base below, leaving a cavity, of more or less size, through which  
529 spreading of the gas could take place.

Q. Suppose that, according to the specifications, the concrete foundation is one which gas and water together would permeate. Would you think it would follow that gas would strike the pavement and work a hole up through it, or that it would spread; or have you such experience as would enable you to give an opinion on that subject, which would be satisfactory to yourself?

A. From my acquaintance with gas, from my knowledge of the behavior of gases in general and from what observation and experience I have had in connection with asphalt pavements, I would say that the gas passing through the concrete base would come into contact with the asphalt sheet above it. If that concrete base were porous, as I understand the question to assume, the gas would diffuse through that concrete base as water would diffuse through a sponge. If the asphalt sheet was not in complete contact with the concrete base, the gas escaping from the base would spread through this cavity. Whether it would penetrate or not would depend upon a number of issues. That is, if a heavy vehicle were to pass over this unsupported sheet of asphalt, or a poorly supported sheet of asphalt, there would be a tendency for it to break through and form a fissure, through which gas might escape. That the gas would, of itself, perforate a sheet of asphalt, I do not believe. That would imply that it impinged upon it with force, or that it came through a limited orifice, or that there was an action which caused complete

530 solution in order to effect penetration; and I see no evidence that it could occur in a very long time, without the action of a very large supply of gas.

Q. Then if the gas was distributed through a porous concrete, and the pavement was good above it, there would be likely to be a spread of gas in a considerable part of the street; would there not?

A. There might be gas.

Q. Suppose that, in addition, the concrete was in a damp place, and absorbed the water, and the water had assailed the under surface of the asphalt pavement, so that it had more or less disintegrated. Would that increase the opportunity for the gas to find its way along under the pavement?

A. I do not think it would, because this disintegration by water, either in or out of the presence of coal gas, that I have observed to take place in the Trinidad asphalt, forms a kind of a slime, a muddy looking mass, which would tend rather to fill the pores on the surface of the concrete and prevent the escape of the gas.

Q. Then the effect of that would be to cause the gas to spread further and further through the concrete in order to find a place to escape; would it not?

A. If the concrete was sealed at that point—although it is assumed, as I understand, that there was a place for it to escape. I understand, in the questions I have been answering, that a means of escape was afforded.

Q. I mean that there was no place for it to escape, and that when the disintegration was going on afterwards, 531 from the action of water, and the under side of the pavement became slimy, it would tend to prevent the opening of a place to escape through the surface. Would not the natural effect of that be that the gas would spread out more and more under the pavement, than if this slimy mass was not formed?

A. I do not see that that would be a necessary sequence. The condition is that a certain space is filled with gas, that above it is a sheet of asphalt sealing that space. We assume also that the sides and bottom are sealed. The gas fills a certain area there, and whether the bottom of the asphalt, with this slime upon it, was acted upon or unacted upon, the asphalt would not increase or decrease the space beneath; and I do not see that it would in any way tend to change the space occupied by the gas. It is only that it would tend to prevent direct contact between the gas and the bottom of the asphalt sheet.

Q. I am assuming that there is a leak in the gas main under the pavement, and that the quantity of gas is constantly increasing. If, by the formation of this slime along the top of

the concrete, on the under surface of the asphalt pavement, the escape of the gas is made more difficult, as I understand you to say it is, would it not necessarily follow that as the gas continued to escape it would spread further and further, seeking a place to get out of the way?

Mr. THOMAS: This line of inquiry is objected to as not presenting the facts in the case, in that it omits all reference to the conduits in M street.

A. I have not admitted that the contact of the gas  
532 with the asphalt sheet permits of the escape of that gas.

In answer to the hypothetical questions, I have held that the formation of the slime on the bottom surface of the asphalt sheet, by the action of the water upon it, would tend to prevent the gas, which was in the porous concrete, passing through and coming in as direct contact with the asphalt sheet as would be the case if that slime did not exist there. I do recognize the fact that if the gas be escaping from a main or any other source of supply and goes into this space, either a means of escape will be found, or else finally the gas will fill the space to the pressure that exists in the main and then the flow of gas ceases. There will be no further introduction of gas.

The further taking of these depositions was thereupon adjourned until Friday, March 31st, 1905, at 3 o'clock p. m.

533 WASHINGTON, D. C., *March 31, 1905*—3 o'clock p. m.

Met pursuant to adjournment.

Present on behalf of the complainant, Mr. WORTHINGTON.

Present on behalf of the defendant, Mr. THOMAS.

Whereupon the cross-examination of the witness C. E. MUNROE is continued, as follows:

The WITNESS: I wish to correct my testimony given at the last session in regard to the size of the patch of asphalt pavement in front of 3145 M street and the adjacent property, as I find from my notes that I have it recorded that it was about 34 feet in length and from six to eighteen inches wide where the cut was made. I do not know the exact size of the patch; but it had at least those dimensions.

By Mr. WORTHINGTON:

Q. Have you produced the three jars referred to in your testimony the other day, which I asked you to have sent here today?

A. I have.

(The witness produces three jars, one labeled in ink "Asphalt pavement and water, September 18, 1904;" and in pencil "November 20th, 1904"; another, marked in ink "Asphalt pavement—water and gas—September 18, 1904", and in pencil, "November 20th, 1904"; and a third, marked "Asphalt pavement and gas, September 18th, 1904" in ink and "November 20th, 1904" in pencil.

Q. What do the dates on these jars indicate?

A. The first date indicates when the experiment began and the gas was turned on. The last date represents when the gas was turned off, and the present covers were put on the jars, for the two through which the gas was sent.

Q. I notice that the lids of these jars are screwed on, and can be unscrewed without breaking anything.

A. They can.

Q. Have they been unscrewed since they were put on, as you testified the other day?

A. They have not.

Q. I notice they do not seem to be water tight.

A. I am not certain about this one. They are supposed to have rubber gaskets on them. This one, I was not particular whether it was water-tight or not (referring to the jar marked "Asphalt pavement and water").

Q. Would you mind unscrewing the top of the one marked "Asphalt pavement, water and gas", so that we can see whether the presence of gas is noticeable there still?

(The witness did as requested).

By Mr. WORTHINGTON:

Q. In your judgment, is there any difference in the effect of gas upon a specimen of asphalt pavement when there is a continuous flow of gas against or through the pavement, and when the specimen is simply fastened in an air-tight jar for months, with the same gas?

535 A. There would be a difference.

Q. What difference?

A. Any effect that gas has is probably due to certain portions of the gas and not to the gas as a whole, and with a limited supply of gas that portion which does produce the effect would of course be exhausted. On the other hand, if the exposure was not constant in the case of the flow of gas, and the pavement was exposed, as pavements are, to the action of the air, then the pavement, provided it were affected by the gas, would have a chance to recover; whereas if it be constantly in that enclosed chamber in the presence of those parts of gas that affect it, it would be permanently affected.

Q. Would those two differences tend to neutralize each other?

A. I do not see that they could tend to neutralize each other, where we are comparing the effect in the open with the effect in a closed chamber. They do not so come in contact with each other that there can be neutralization.

Q. What I mean to ask is whether the condition of the two samples of pavement would be likely to be the same as the expiration of a definite period of time, assuming that they were in the same condition when the application of gas began?

A. I see no basis upon which to determine whether they would or would not.

Q. Then what is the use of your laboratory experiment with the jars?

A. The object was to see whether the gas injuriously  
536 affected the pavement, and the experiment was made by permitting the gas to continuously flow through it during this time, in the presence of water.

Q. I understand the gas flowed, in the case where you used gas and water, from September 18th, 1904 to November 20th, 1904, and from that time the jar was sealed, and the same gas was kept in the jar. What I want to get at is, whether, in your judgment, the sample is in the same condition it would have been in, if the gas had been flowing through it continuously from September 18th, 1904 to this date?

A. I cannot assert that it is; but I do believe that it is in the same condition that it was at the time this experiment was arrested.

Q. I believe you have been retained in this connection by the Gas-Light Company, which is interested in the M street question?

A. I have been retained by them to look into it; yes.

Q. Have you any other connection with the matter than that?

A. I have not.

Q. You have not been retained by any company which is a rival of the company that uses Trinidad asphalt?

A. I have not.

Q. Have you investigated this matter at all with reference to the literature on the subject? I mean the literature bearing upon the subject of the effect of illuminating gas on asphalt pavements?

A. I have not recently. I have, in the past, read the  
537 literature of the subject, but I have not expected to come into this case in this way, and have not for some time made myself acquainted with the condition of the literature.

Q. Are you aware that there are a number of publications by experts in this line, which have been published in recent years?

Q. Was the odor of gas there decided or faint?

539 A. It was distinct in the pavement, as I took it up.

Q. Do you know whether the odor of gas still permeates that pavement?

A. I do not.

Q. Or whether it has, at any time, since the months you have mentioned?

A. I do not.

Q. You intimated a moment ago, as I thought, that there is some doubt in your mind as to just what ingredient of the gas it is that affects asphalt pavement so as to soften it. Was I right about that?

A. If it is any, I feel sure as to what constituent of gas it is which produces the effect.

Q. What is that constituent?

A. It is the heavier hydro-carbons, the unsaturated hydro-carbons.

Q. Could you state that in such a way that men outside of your profession can understand just how this ingredient in the gas operates to soften the pavement?

A. Simply by having a solvent effect.

Q. What other gases, if any, would have the same effect?

A. The substance present in the coal gas to which I refer are notably benzine, and it may be ethyl and acetylene.

Q. You are not sure—you say it may be?

A. Yes, I am not sure. We do know that benzine is a solvent for asphalt to some extent, for the bitumens.

Q. Have you any objection to leaving these three jars  
540 as they are now, in the custody of the Examiner, for the present?

A. None whatever.

Mr. WORTHINGTON: Then without offering them in evidence, I will ask that they be left here, with a view of the taking of further testimony in the case.

Redirect Examination.

By Mr. THOMAS:

Q. At the last session I understood you to say that you had certain other samples of asphalt pavement which you had taken from time to time?

A. I have.

Q. Did you bring them with you?

A. I did.



Mr. THOMAS: I give notice that I reserve the right to produce at the hearing, if desired, samples in jars numbered 1 to 11, here produced by Professor Munroe.

By Mr. THOMAS:

Q. You spoke in your direct examination or in your cross-examination, of some samples of Cuban asphalt you had preserved, having kept the same in water. Have you those samples with you?

A. I have here those samples of Cuban asphalt in water, and these three samples of Cuban asphalt in water and gas.

Q. I have one here marked March 9, 1905, Cuban Asphalt in Water.

541 Mr. WORTHINGTON: I object to any further reference to this, as the experiment seems to have been made pending this suit, and for the purpose of qualifying the witness to testify.

By Mr. THOMAS:

Q. What do the other jars there show?

A. This Cuban asphalt in water only (referring to the jar labelled September 18th—noon—Cuban asphalt in water. At the bottom: "November 20, 1904.")

The WITNESS: September 18th is when the experiment began, and November 20th, is when the experiment ceased.

Mr. WORTHINGTON: All of this testimony about these samples is objected to on the ground last mentioned; and all of this testimony is further objected to on the ground that it was part of the examination of the witness in chief, and is not proper re-direct.

Mr. THOMAS: I offer in evidence the jar labeled, "September 18th,—noon—Cuban asphalt in water,—November 20, 1904."

The above-mentioned jar is marked Exhibit C. E. M. No. 2.

Q. Has this exhibit C. E. M. No. 2, been opened since November 20th, 1904?

A. It has not.

Q. In reference to jar on which there is a label "September 18th—12 noon—Cuban asphalt in water and gas—bubbling through—November 20th, 1904"—what is that jar?

A. That is a jar containing a piece of Cuban asphalt which was partly submerged in water and then gas was passed  
542 through from September 18th, to November 20th. The jar was then closed.

Q. Has it been opened since then?

A. It has not.

Mr. THOMAS: I offer this jar in evidence.

Mr. WORTHINGTON: The objections made to the preceding testimony are renewed as to this offer, and as to everything that may be asked of the witness hereafter in relation to these samples which he is now producing.

The above-mentioned jar is marked Exhibit C. E. M. No. 3.

By Mr. THOMAS:

Q. In reference to the jar labeled September 18th—noon—Cuban asphalt in dry illuminating gas—November 20, 1904, I will ask you what that indicates?

A. That indicates that the jar contains this lump of Cuban asphalt, and that from September 18th to November 20th, 1904, illuminating gas was passed through the jar and the jar was then closed.

Q. Has it been opened since November 20th, 1904?

A. It has not.

Mr. THOMAS: I offer this jar in evidence.

The above-mentioned jar is marked Exhibit C. E. M. No. 4.

Q. With reference to the jar labeled A. March 9th, 1905—Trinidad asphalt, Richardson—I will ask you what that indicates?

A. That indicates that the contents are a sample of Trinidad asphalt which came from the National Museum, which  
543 has been exposed in water. It was boiled in water for some time. It was exposed in boiling water from 3.30 p. m. to 6 p. m. on March 8th, 1905, and again on the next day, without the apparatus being moved, it was heated to boiling from 9.40 a. m. to 12.40 p. m. It was removed from the boiling flask at 2 p. m. of March 9th, and the bottle was closed and has not been opened since.

Mr. THOMAS: I offer this jar in evidence.

The above-mentioned jar is marked Exhibit C. E. M. No. 5.

By Mr. THOMAS:

Q. I have a jar labeled B, March 1905—Cuban asphalt. What does that indicate?

A. That indicates that it contains a sample of Cuban asphalt which was subjected to boiling in water in an apparatus on March 8th, 1905, from 3.30 p. m. to 6.30 p. m., and then without being removed from the apparatus it was again subjected to boiling in the apparatus from 9.40 a. m. to 12.40 p. m., on March 10th. It was then transformed to this bottle, and the bottle has not been opened since.

Mr. THOMAS: I offer this jar in evidence.

The above-mentioned jar is marked Exhibit C. E. M. No. 6.

By Mr. THOMAS:

Q. Why did you subject these samples to the test of boiling?

A. In order to shorten the time of exposure, as temperature, in chemical action, frequently takes the place of time.

544 CHARLES E. MUNROE,  
*By the Examiner by Consent.*

The further taking of these depositions was thereupon adjourned subject to notice.

545 WASHINGTON, D. C., April 10th, 1905—3 o'clock p. m.

Met pursuant to agreement.

Present on behalf of the complainant, Mr. WORTHINGTON.

Present on behalf of the defendant, Mr. THOMAS.

Whereupon, ALLEN W. DOW, is recalled for redirect examination

By Mr. THOMAS:

Q. In your cross examination you made several statements with regard to the disintegration of asphalt pavements by gas. Those places are as follows: On page 64 you stated "The gas remained in the soil for a long time afterwards, because I know the pavement was affected in new places after that."

On page 66 you stated: "The pavement in front of the Arlington Hotel is being affected by gas."

On page 68 you were asked: "As to the pavement on 11th street just north of Pennsylvania Avenue—when was it that your attention was called to the fact that that pavement seemed to be injured by gas and water?"

You answered: "I have known it for about five years; but I believe action was taken on it three years ago."

On page 69 you were asked: "Now as to the place in front of the Arlington Hotel. You say that is now affected  
546 by gas?"

You answered: "Yes."

On page 72 you were asked: "Does your experience with that and other similar cases, indicate to you or lead you to think, that illuminating gas may travel a long ways from the place where it escapes from the pipes, and damage a pavement?"

You answered: "Yes, I should think it would."

What have you to say about these statements?

A. Where I have used the word "affect" I do not mean that

the gas rotted the pavement or injured it. In the place where I answered "Yes," in reply to a question as to whether gas traveled a long distance and damaged the pavement, I meant of course that the gas was in the presence of water.

Q. On page 69 of your cross-examination, you were asked respecting the pavement on 11th street just north of Pennsylvania Avenue, this question: "Q. And since that time the pavement has acted normally, has it?" You replied in the affirmative. What did you mean by that?

A. I meant that the patches which had been put in the pavement had not shown any signs of disintegration, but had acted normally. It may take several years longer to notice any disintegration, and from an examination at that time while the pavement might be acting normally, it might, in time, go to pieces again.

Q. Speaking in reference to the action of illuminating gas on asphalt pavements, you were asked on cross-examination, on page 62, this question: "When was your attention first  
547 drawn to the fact that illuminating gas would rot asphalt pavements?" You answered: "I might say before the year 1893."

What have you to say about that?

A. In all such cases as this I would like it understood that I meant illuminating gas in the presence of water, water being an agent which was practically always present.

Q. Have you ever seen any pavements, at the end of the guaranteed period, in such condition that the contractors repaired the same without objection? I refer, of course, to those pavements which were injured by gas and water.

Mr. WORTHINGTON: I object to the question as being wholly immaterial and as relating to matters outside of anything in this inquiry.

A. Yes; the Cranford Paving Company had two cases recently, one year before last, where they replaced a great lot of pavement, about as much in proportion as was replaced on M street, on Pennsylvania Avenue between 18th and 19th streets on the north side; and in another place the Cranford Paving Company last year, on Pennsylvania Avenue in front of the State Department, replaced a large portion of pavement which was removed, being disintegrated by water, and which contained no gas. This was done by the Cranford Paving Company without any objection at all, at the end of their five-year guarantee.

Mr. WORTHINGTON: Having heard this answer I renew my objection, and move to strike out the answer on the ground that

548 the fact that some contractor has chosen to repair a pavement at the end of the five-year term, where there was no question of gas, cannot in the slightest degree affect this case, where the whole question is whether the pavement was injured, and if so to what extent, by gas.

By Mr. THOMAS:

Q. What, if anything, have you to do with respect to the giving of notice to the gas company of any leakage in its mains?

A. That is outside of my province. I notify the Engineer Department of pavements smelling of illuminating gas, or if I know the Engineer Department is aware of that, I pay no further attention to it.

Q. In your cross-examination, on page 100, you were asked this question: "I judge, from what you say about this provision in the District Appropriation Bill last year, that before that time you had been giving testimony as an expert in these matters?" You answered: "Not in this matter; no." Then you were asked: "In asphalt matters." And you answered "In asphalt matters; yes."

Will you please state to me the character of the testimony you have given as an expert, and the various cases in which you have been employed?

A. In no case in which I have been employed, have I ever given any testimony derogatory of any product of the Barber Asphalt Paving Company. A sample of the testimony given by me would be something like this: I testified for the Globe Asphalt Company before the Commissioners of the City of Brooklyn, that I thought that Obispo asphalt would make a good pavement, and that I did not know how it was manufactured. In a law suit in St. Louis, I testified for the

549 Warren Brothers Company that the city of Washington had some very old coal tar pavements that had given excellent service, and that I believed similar pavements could be made with good materials at the present date. I have testified in cases for the Barber Asphalt Paving Company on similar lines.

Q. Some question was made on pages 113 and 114 of your cross-examination, respecting the identity of the sample of Bermudez asphalt cement which you used in experiments, and in a comparative test with Trinidad asphalt cement. What have you to say about the identification of that sample which you used?

A. The identity of the sample of Bermudez asphalt is really of little moment in this case. It was merely comparing another asphalt with a sample of Trinidad asphalt, which asphalt I know to be the only asphalt to be affected by water.

## Recross Examination.

By Mr. WORTHINGTON:

Q. From your testimony today I infer, in reference to the testimony to which Mr. Thomas has called your attention, on pages 64, 66, 69 and 72, that you mean that gas alone, in your opinion, would not injure the pavements. You do not mean to say that gas would not cooperate with water in bringing about disintegration?

A. I mean to say that gas alone would not bring about disintegration. Gas would aid water in bringing — about.

550 Q. How long has it been since you testified as an expert in behalf of the Barber Asphalt Paving Company?

A. It was not exactly testimony for that company. I was called upon in the Muskegon case, and they expected to take my testimony in the case; but they did not do so. There was another case in Peoria, Illinois, in which I testified for the city, but it was for a company allied with the Barber Company.

Q. When did you ever testify for the Barber Company?

A. Never directly. I think I have testified for them, but I cannot remember the date now. I think there was one case in Cincinnati, but it was quite a long time ago.

Q. How long ago were you consulted in the Muskegon case?

A. About two years ago.

Q. When were you examined in Peoria, by a company allied with the Barber Company, as you say?

A. I believe that was in 1896.

Q. What company was that?

A. That was the Warren Sharp Company.

ALLEN W. DOW,

*By the Examiner by Consent.*

Subscribed and sworn to before me this — day of —, A. D., 1905.

\_\_\_\_\_,  
*Examiner in Chancery.*

The further taking of these depositions was thereupon adjourned until Tuesday, April 11th, 1905, at 3 o'clock p. m.

551

WASHINGTON, D. C.,  
*Tuesday, April 11th, 1905—3 o'clock p. m.*

Met pursuant to adjournment.

Present on behalf of the complainant, Mr. WORTHINGTON.

Present on behalf of the defendant, Mr. THOMAS.

Whereupon, GEORGE C. BURNS, is recalled for redirect examination.

By Mr. THOMAS:

Q. You testified on your cross-examination that the Capital Traction Company paved between these tracks as the law provides, and the contractor for the District did the rest of the paving on the street. You also testified that the colored portions on both of the maps offered in evidence are outside of the space occupied by the Railroad Company, and that your computation did not include the space between the railroad tracks, but did include the space from the tracks to the gutter only. You then proceeded to make some explanation about the amount chargeable to the Barber Asphalt Company. I wish you would now state what the fact was in reference to any charges made against the Barber Asphalt Paving Company for any part of the pavement included within two feet of the rails, which was properly chargeable and ought to have been charged to the Capital Traction Company.

552 A. We will take the first contract between 31st and 32nd streets. The whole surface of the street, including the two feet adjacent to the track, was 734,449 square yards. That has the same guarantee on it, both for the two feet adjacent to the tracks and for the rest of it. It is not to be charged to the Capital Traction Company at all. The part that we charged to the Capital Traction Company was 97 square yards, which was taken up and replaced, and which was not the pavement of the Barber Asphalt Company. All of the pavement of the Barber Asphalt Company that was taken up was charged to its guarantee.

Q. Was any part of this two feet outside of the railroad tracks, that should have been repaired by the Capital Traction Company, charged to the Barber Asphalt Paving Company?

A. No; not in the way you put that question. I do not think you understand the way we charged this guarantee.

Q. No; I do not. That is the reason I want you to explain it.

A. I say that there is the same guarantee for the two feet adjacent to the rails that there is for the rest of the repair work.

Q. The same guarantee by the contractor?

A. Yes, sir. He does not guarantee it to the railroad company, but to the District.

Q. And you charge all of it, from the tracks to the gutter, to the Barber Asphalt Paving Company; is that right?

553 A. Yes; except where someone else had replaced the pavement, which we could tell by the patches in it.

GEORGE C. BURNS,

*By the Examiner by Consent.*

Counsel for the defendant thereupon announced their testimony closed.

554 *Defendants' Documentary Exhibits.*

Filed July 28, 1905.

"Exhibit Dow No. 5."

*To be entered on page 59.*

103 &

103 a Slight odor of gas.

Gas begins 3 ft. East of East bld. line 3112 & 3114.

104 Sample 3116 1 ft. from gutter, Richards took sample from same piece.

105 Gutter 3110.

Gas began 3 ft. West of East bld. line of 3116.

106 Sample from middle of street No. 3116, no gas.

107 Mr. Richards called my attention to some dry base in front of 3114 2" from gutter about 1 sq. yd. I called his attention to the fact that the pavement over that dry patch did not show any free grains of sand. Picked up sample 107 and showed him.

108 Good material Va. Ave. between N. Cap. & 1st. S. W. Slight odor of gas 9 ft. West of East bld. line. 3140 for about 15 ft.

109 Sample from in front of 3148 right next to good material.

112 Sample 5 ft. N. of curb 18 ft. E. of curb line at corner. No smell of gas. Water in pavement, base damp all around corner 32d street.

North side M 33 to 36th.

No gas in narrow patch 30 ft. E. of E curb 34th street.

No gas in entire patch at 34th street.



- 113 Intersection of 34 & M center of M 4 ft. E. of center of 34th. Slight odor as of gas. Concrete base wet. Sample contains water.
- 114 9 ft. W. of No. 8 1 ft. S. of gutter line. Smell like considerable gas.
- 115 Sample next to gutter in from No. 13. No gas odor, shows a little water, base a little damp.
- 116 1 1-2 ft. out from No. 115 very slight odor of gas considerable water, base quite wet.
- 117 14 ft. W of No. 13 and 2 1-2 ft. N. Smell very strong of gas, concrete but slightly damp, material hung to concrete base which looked black.
- 118 7 ft. W. No. 16 and 3 ft. N. No gas considerable water.
- 555 No gas anywhere from 1 ft. E. of No. 16 to 20 ft. W. of No. 16. No. 118 representative sample of condition, all the rest of patch gas.
- 119 6 ft. W. curb line and 3 ft. S. of N. curb line M street.
- 120 3 ft. from curb 45 ft. W.  
No gas 6 ft. West of.
- 121 97 ft. W. of 35th gas and water, all patch gas.
- 122 50 ft. East of No. 3416 2 ft. from gutter, base wet.
- 123 50 ft. East of No. 3416 5 ft. from gutter, base wet.  
Bermudez asphalt binder and top put in from 2 1-2 ft. E. of E. building of 3416 E. 27 ft.
- 124 Average of material from in front of 3404, concrete wet.  
No gas N side 34th street to 36th street, water.
- 127 Depression in concrete caused low places in pavement, material good. Concrete evidently broke while rolling pavement judging from the thickness of material.  
3 1-2, 5, 4, 3 1-2, 1 3-10 East of west edge.  
3 1-4, 3 3-4, 3 1-4, 4 ft. East of west edge.
- 128 Sample from line of E. curb of 34th street center of street gas.  
Very little gas east of building line No. 3354.
- 129 Sample east building line No. 3352 no gas.
- 130 Sample represents material in front No. 3350, no gas, water, in concrete.
- 131 Sample from piece taken by Mr. Richards No. 3336, gas entire patch.

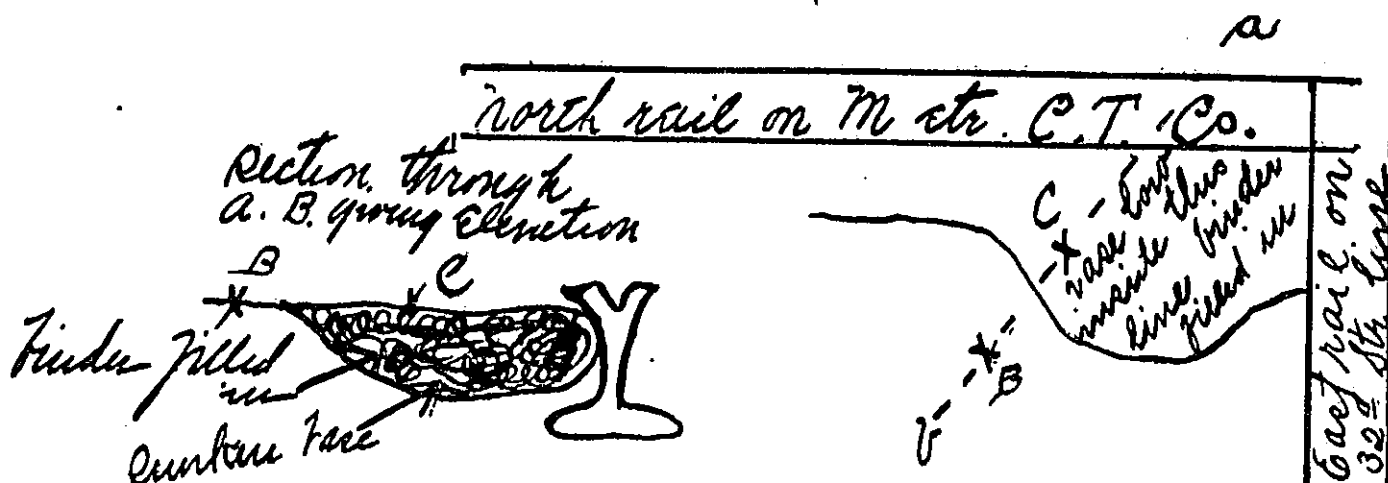
556 2d. contract while repairing:—

32d. str. N. side; Smells of gas all along east track of Tennley-  
20—1728A

town Road. Concrete base very damp under section of 32d street.

Sample A 4 ft. from N. rail M street, 3 ft. from E. rail 32d street, smells of gas, shows water.

Plan showing B and C.



This diagram shows where the concrete base is sunk under the railroad, and binder has been rolled in to fill in the depression. Naturally this broken base is very porous, and readily admits the passage of gas.

Sample C Taken from edge of this hole about 2 ft. from rail, and smells very strongly of gas, but shows no water action. The water not being able to penetrate through this thick mass of binder has protected C from its action.

Sample B 1 ft. N. of C on the solid concrete, which was damp. B smell very slightly of gas and shows the action of water through and through. See plan of this and section.

Sample D 50 ft. from E. track of 32d street road and 3 1-2 ft. N. of N. track of M street road. Concrete very damp and sample shows action of water. Not the slightest odor of gas. The odor of gas on the work so far examined has been stronger just at the intersection of 32d and M. As the work proceeded East this odor became less and less until it disappeared at 30 ft. from E. rail of M street. All the concrete so far is very wet, and all the pavement shows indication of being acted on by water.

In repairing a sinking in the brick gutter in front of 3151 M street, digging into the broken concrete, water was found about 2 inches from bottom of brick.

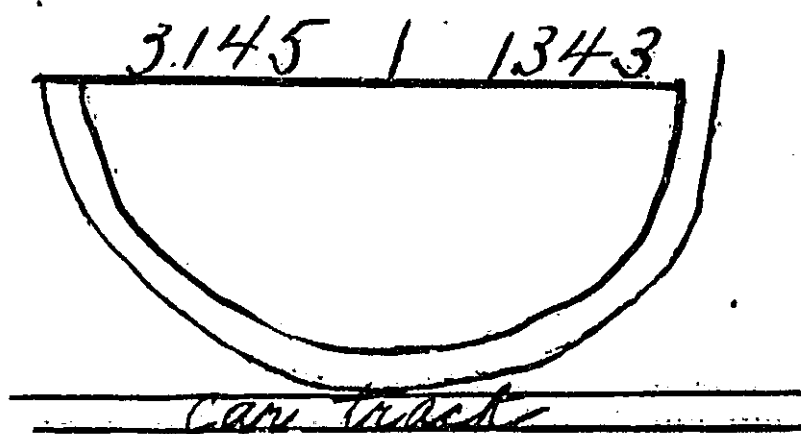
The cellars of 3149 and 3151 M street are damp continually. Cellar of 3140 has an intermittent spring in it. It is sometimes so flooded with water that they had to put a drain in the concrete to run it off. Was told by the proprietor that this water did not of necessity occur after a rain, and there seemed to be no reason for its coming up. Proprietor has spent consider-

able money hunting for leaks, both on his premises and on adjoining one, but can find none. Mr. Brennan witnessed this.

557 Sample E 10 ft. S. of N. curb, 4 ft. 4 inches E. of W. building line of 3151 M. No gas, concrete very wet.

Sample F 11 ft. from curb, 4 ft. W. of W. building line of 3145. Begins to smell of gas on West building line of 3145. Concrete wet,

Asphalt surface does not look any more disintegrated than where there was no smell of gas further W. Gas odor very slight near railroad track. Appears worse about 2 ft. from curb in front of 3145 M.



Sample G 9 ft. 7 in. E. of W. building line of 3145, 8 ft. S. of N. curb. Smells of gas, contains water, concrete wet.

Sample H 12 ft. E. of E. building line of 3143 about 8 ft. out from curb. No smell of gas, shows action of water, concrete damp.

Hole worn through asphalt 10 ft. from curb, 2 ft. from W. building line of 3137. No odor of gas in the slightest, concrete very wet.

Begin to smell gas about 2 ft. E of E. building line of 3135. Smell of gas ends 13 ft. E. of E. curb of alley. The odor of gas is strongest near gutter opposite W curb of alley, diminishes in strength out to the track from slight odor at track. The portion of pavement affected by gas is shaped somewhat like last drawing of gas action.

Sample I 3 ft. W. of W. curb line of alley, about 7 ft. S. of curb. Sample K 12 ft. E. of E. curb line of alley, 10 ft. S. of curb. No odor of gas, concrete very damp. All pavement to E. building line of pavement near tract in front of 3119 taken out on account of being out of shape.

Contains only a little water action near binder.

558 Sample M 6' N. north rail 7' west rail. Water, no gas.  
 Sample N 8' south of south curb 14' west of west curb.  
 Smells strongest of gas. Stuck to concrete, no moisture in concrete, damp out further.  
 Sample O 13' south of south curb 40 ft. west of west curb 32d street. No smell of gas, water in concrete.  
 Gas begins about west curb line of 32d street.  
 Gas smell ends 35 ft. W. of W. Curb line of 32d street.  
 Gas smell begins 64 ft. W. of W. Curb 32d street, ends 72' W. of W. curb.  
 Sample P. 13 ft. W. of W. building line 3207, gas begins 4 ft. E. of W. building line 3207.  
 Gas ends 20 ft. W. of W. building line of 3207.  
 Sample Q 14 ft. South of north curb 6 ft. E. of W. building line 3211, no gas, water.  
 No gas to Potomac Street.  
 N. W. Potomac and M gas action to gutter pavement of good thickness, has been recently repaired over a cut for District. Did not show much water action near curb, evidently owing to newness of material. Entire cut here out of shape, hole near car-track.

Sample R In front of 3221 M  
 S Right across from 3222 M  
 T About 12 ft. west of S.  
 U Right across from 3232 M  
 V Right across from 3234 M  
 W Right across from 3236 M  
 X Right across from 3238 M  
 Y In front of 3249 M  
 Z Edge of alley west of 3249

Sample 201 In front of 3255 M  
 202 In front of 3265 1-2 M.  
 203 At corner of Potomac and M  
 204 14 ft. from N. of S. curb M st. 14 ft. W. of W. curb line 32  
 205 Water action, no gas.  
 206 Water action, no gas.  
 207  
 208 Center of gas, gas odor for about 10 ft. around this spot.

- 209 Sample of binder adhering to base, pavement above this is badly rotted by water, which makes it appear as though water came in through surface, or entered between binder and wearing surface.
- 210 3 ft. S. E. of 209 Water action, no gas.
- 211 Water action, no gas.
- 212 Water action, no gas.
- 213 Center of patch.
- 213b Edge of Patch.
- 214 Water action, no gas, representative of entire patch.
- 215 Water action no gas.
- 208 Only gas on this block.



560 STATEMENT OF ASPHALT PAVEMENT ON M STREET, NW., LAID BY THE BARBER ASPHALT PAVING COMPANY, CHARGED TO RAILWAY COMPANIES, TAKEN UP AND REPLACED BY THE CRANFORD PAVING COMPANY

BY ORDER OF THE COMMISSIONERS, D. C.

From	To	Total Surface under Guarantee	Total Surface under Guarantee Charged to Railways.		Total Surface		Taken up & replaced, charged R.R. Cos.	Total surface originally ch'gd to Rwy. Co., taken up & replaced, & charged to Barber Company.	Remarks
			Cap. Trac. Co.	Geo. & Ten-leytown R.R.	Sq. Yds.	%			
31st 33rd	32nd 36th	734.49 4410.53	94.08 54.39	6.33	100.41 514.39	14.0 12.0	97.00 00.00	3.41 514.39	S. side
	Total...	5145.02	608.47	6.33	614.80	13.0	97.00	517.80	

STATEMENT OF ASPHALT PAVEMENT ON M STREET, NW., LAID BY THE BARBER ASPHALT PAVING COMPANY, CHARGED TO RAILWAY COMPANIES, TAKEN UP AND REPLACED BY THE BRENNAN CONSTRUCTION COMPANY,

BY ORDER OF THE COMMISSIONERS, D. C.

31st 32nd	32nd 33rd	Total...	769.26 3538.92 4308.18	97.53 421.72 519.25	7.65 15.22 22.87	105.18 436.94 543.12	14.0 11.0 12.5	15.96 44.88 60.84	89.22 392.06 481.28	N. side.

HR

*Order.*

Filed March 13, 1906.

In the Supreme Court of the District of Columbia.

Equity. No. 23,774.

THE BARBER ASPHALT PAVING COMPANY, Plaintiff,

vs.

HENRY B. F. MACFARLAND ET AL., Defendants.

The resignation of Ellis H. Roberts defendant in the above entitled cause, from the office of Treasurer of the United States, and the appointment of Charles H. Treat on the 1st day of July, 1905, as his successor, having been suggested by the complainant by petition filed herein on the 8th day of March, 1906, it is, upon motion of Charles L. Frailey of Counsel for Complainant, and upon consideration of said petition, ordered, by the Court that the said Charles H. Treat, be and hereby is, made a party defendant in this cause.

HARRY M. CLABAUGH,

*Chief Justice.*

*Marshal's Return.*

Served copy of the within order on Charles H. Treat personally, March 15, 1906.

AULICK PALMER, *Marshal,*  
S.

*Adoption of Answer of Ellis H. Roberts.*

Filed April 6, 1906.

In the Supreme Court of the District of Columbia.

Equity. No. 23,774.

THE BARBER ASPHALT PAVING COMPANY

vs.

ELLIS H. ROBERTS, Treasurer of the United States, ET AL.

Now comes Charles H. Treat, Treasurer of the United States, against whom this cause has been revived, and adopts as his



own the answer heretofore filed in this cause by Ellis H. Roberts, late Treasurer of the United States.

DANIEL W. BAKER,  
*Attorney of the United States*  
*in and for the District of Columbia,*  
*Solicitor for Defendant Treat.*

563

*Stipulation.*

Filed June 6, 1906.

In the Supreme Court of the District of Columbia.

Equity. No. 23,774.

THE BARBER ASPHALT PAVING COMPANY, Complainant,  
*vs.*

HENRY B. F. MACFARLAND ET AL., Defendants.

It is hereby stipulated by and between counsel for the Barber Asphalt Paving Company and for the Commissioners of the District of Columbia, respectively, that the following facts could be proved by competent evidence, and, if material to the issues herein, may be taken as facts proved in the case, viz:—

That on November 28, 1903, a request was made by the Commissioners of the District of Columbia, to the Secretary of the Treasury of the United States of America to pay from moneys held under retent of contract No. 2491 between the Barber Asphalt Paving Company and the District of Columbia the sum of \$1,847.94, which was the actual cost of repairs made by the District of Columbia to the roadway of the pavement on the north side of M street between 31st and 32d streets and on both sides of M street between 32d and 33d streets, in the City of Washington, District of Columbia, which said work was completed prior to November 19, 1903, on which date the Computing Engineer of the District of Columbia reported to said Com-

missioners that said repairs to said M street under said  
564 contract had been made by the said District at said cost.

The above request on the said Secretary of the Treasury was to pay said money under said retent which was held by the Treasurer of the United States, as Ex-Officio Commissioner of the Sinking Fund of the District of Columbia, into the Treasury of the United States to the credit of the Guarantee Fund of the District of Columbia.

The Guarantee Fund of the District of Columbia, during the period involved in this matter, is an account carried upon the books of the Treasury Department to which is credited amounts

deducted from retents withheld under contracts with the District of Columbia for the purpose of meeting therefrom payments for repairs made to works covered by such contracts, found necessary during the guarantee period. The money is paid to the credit of said fund by the Treasurer of the United States as Ex-Officio Commissioner of the Sinking Fund of the District of Columbia upon request of the Secretary of the Treasury.

That the Secretary of the Treasury of the said United States acted on the said request of the said Commissioners on December 4, 1903, by calling on the Treasurer of the United States to pay into the Treasury of the United States to the credit of said Guarantee Fund of the District of Columbia the said sum of \$1,847.94 derived from said retent under said contract No. 2491. That the total retent under said contract No. 2491 was \$3,829.82, and was invested in \$3,500 four per cent United States Bonds of 1907 at 108 3-4 costing \$3,806.25, leaving \$23.57 of said retent uninvested. In order to meet said request of said

Commissioners on said Secretary of the Treasury, and  
565 pursuant to his call so to do on the Treasurer of the

United States the latter on December 4, 1903, sold \$1,700 par value of said bonds realizing therefor the sum of \$1,853, leaving, after covering said \$1,847.94 into the United States Treasury to the credit of said Guarantee Fund, a balance in cash to the credit of said retent of \$28.63, which with \$1,800 par value of said bonds still remains in the hands of the Treasurer of the United States to the credit of the Barber Asphalt Paving Company, subject to its order.

That before the said request was made by the said Commissioners of the said Secretary of the Treasury of the United States on November 28, 1903, as aforesaid, the Commissioners of the District of Columbia had paid out the said sum of \$1,847.94 as follows: From the Appropriation for Improvements and Repairs of the District of Columbia for the fiscal year 1903, the sum of \$98.64, and from the Appropriation for Improvements and Repairs of the District of Columbia for the fiscal year 1904, the sum of \$1,749.30, making the total sum of \$1,847.94, and the object of the said request of November 28, 1903, made by the said Commissioners of the said Secretary of the Treasury was to re-imburse the said Appropriations for Improvements and Repairs for the said money so expended which had been charged to the retent of the said contract by the District of Columbia. Thereupon, in accordance with the practice of the Treasury Department of the United States, the Commissioners of the District of Columbia caused a transfer voucher to be drawn for the said sum of \$1,847.94, charging the

566 said Guarantee Fund with the said sum and crediting the said Appropriations with said two sums making up the total sum of \$1,847.94, as aforesaid. Thereupon on said transfer voucher the said Secretary of the Treasury issued on December 29, 1903, a warrant for said sum of \$1,847.94, on said Guarantee Fund and a counter-warrant for the aggregate of said sum crediting the said two Appropriations therewith, by which means the said sum of \$1,847.94 was repaid to the said two Appropriations, out of which it had been taken by the Commissioners of the District of Columbia as aforesaid to pay for said repairs.

The Commissioners of the District of Columbia do not by this stipulation admit the materiality of the aforesaid facts nor waive any rights except formal proof thereof, if the same be held to be material to the issues raised by the pleadings herein.

A. S. WORTHINGTON,

*Attorney for the Barber*

*Asphalt Paving Company.*

E. H. THOMAS,

*Attorney for the Commissioners  
of the District of Columbia.*

567

*Final Decree.*

Filed June 27, 1906.

In the Supreme Court of the District of Columbia.

Equity. No. 23,774.

THE BARBER ASPHALT PAVING COMPANY, Complainant,  
vs.

HENRY B. F. MACFARLAND ET AL., Defendants.

This case came on to be heard at this term upon the pleadings and proof, and the stipulation of counsel filed herein on the 6th day of June, 1906, and was argued by counsel and submitted to the Court, and upon consideration thereof, it is, adjudged, declared and decreed that the repairs to the portion of M Street involved in this cause were made necessary by the action of illuminating gas upon the pavement laid by the complainant, and that the complainant was not required to make the repairs to said pavement which it refused to make, and which were afterwards made under the direction of the defendants, and it is, this 27th day of June, 1906, ordered, adjudged and decreed that the defendant, Charles H. Treat, as Treasurer of the United States and Ex-Officio Commissioner of the Sinking

Fund of the District of Columbia, be, and he is hereby, authorized and directed within 10 days from this date to pay and deliver to the complainant, or its solicitor of record, the four per cent Registered Bonds of the United States, due in 1907, of the par value of \$2,500.00 which are now held by him as Treasurer,

as aforesaid, as a part of the retent under contract No. 568 2350, mentioned in the bill of complaint herein; and that the said Charles H. Treat, in his said official capacity, as aforesaid, be and he is hereby, authorized and directed within 10 days from this date, to pay and deliver to the complainant, or its solicitor of record, the four per cent. Registered Bonds of the United States due in 1907 of the par value of \$1,800.00, and the sum of \$28.63 in cash, now held by said Charles H. Treat, in his said official capacity, as a part of the retent under contract No. 2491, mentioned in the pleadings in this case.

As to the sum of \$1,847.94, which by the stipulation of counsel filed in this case, it appears has been paid by the Treasurer of the United States as ex-officio Commissioner of the Sinking Fund of the District of Columbia, to the defendants, as Commissioners of the District of Columbia, upon their request, to reimburse the District of Columbia for the cost of said repairs made by it on said M Street, under said contract No. 2491, and that said sum of \$1,847.94 was derived from the sale of certain bonds of the United States which were a part of the retent under said contract No. 2491, this decree is made without prejudice to the right of the complainant to recover the same from the District of Columbia in an action at law.

It is further ordered that the complainant shall have execution as at law against the defendants in their respective official capacity for the costs of this suit to be taxed by the clerk.

From his decree the defendants, note an appeal to the Court of Appeals of the District of Columbia.

HARRY M. CLABAUGH,  
*Chief Justice.*

569      *Order Extending Time for Filing Transcript.*

Filed July 19, 1906.

In the Supreme Court of the District of Columbia.

Holding an Equity Court.

Equity. No. 23,774.

BARBER ASPHALT COMPANY

vs.

MACFARLAND, ROBERTS, ET AL.

On motion of the Commissioners of the District of Columbia, defendants and appellants herein, it is by the Court, this 19th day of July, A. D. 1906, ORDERED, that the time for filing of the transcript of the record in the Court of Appeals, in the above-entitled cause, be and the same is hereby extended to and including the first Monday in October, A. D. 1906.

By the Court:—

ASHLEY M. GOULD, *Justice.*570      *Directions to Clerk for Preparation of Record.*

Filed July 28, 1906.

In the Supreme Court of the District of Columbia.

Holding an Equity Court.

Equity. No. 23,774.

BARBER ASPHALT PAVING COMPANY

vs.

MACFARLAND, ROBERTS, ET AL.

The Clerk will please make a transcript of the following papers filed in the above-entitled cause for the record on the appeal taken herein, to wit:

1. The original bill filed February 19th, 1903.
2. Temporary Restraining Order, filed February 25, 1903.  
(M. 67 p. 95).
3. Affidavits (2 for Complnt.) filed April 14, 1903.
4. Answer of Commrs. D. C. filed April 29, 1903.
5. Order to U. S. Treasurer for retention of part of fund,  
May 5th, 1903.

6. Answer of defendant Roberts, June 16th, 1903.
7. Replication, June 22, 1903.
8. Supplemental and Amended Bill, November 24, 1903.
9. Rule as to Supplemental and Amended Bill, Nov. 24.  
(M. 69, p. 249.)
10. Answer of Defts. with copies of contracts, Jan. 8, 1904.
11. Depositions, 7 for comps. 6 for Def. June 28, 1905. (with  
Documentary Exhibits.)
12. List of Exhibits for Comps. & Defs. June 28, 1905.
13. Order making U. S. Treasurer (Charles H. Treat), party  
defendant, March 13th, 1906.
14. Adoption of Answer of Def. Ellis H. Roberts by def.  
Chas. H. Treat, April 16, 1906.
- 571 15. Stipulation, June 6th, 1906.
16. Decree, June 27th, 1906.
17. Time for filing transcript extended, July 19th, 1906.
18. Directions to Clerk for preparation of Record.

JAS. F. SMITH,  
*Attorneys for the Commissioners, D. C.,*  
*Appellants.*

A. S. WORTHINGTON,  
*Quinter.*

Service of copy acknowledged,  
July 28, 1906.

*Stipulation of Counsel.*

Filed September 19, 1906.

In the Supreme Court of the District of Columbia.

Sitting in Equity.

Equity. No. 23,774.

THE BARBER ASPHALT PAVING COMPANY

vs.

MACFARLAND, ROBERTS, ET AL.

It is hereby stipulated by and between counsel for the respective parties hereto, that any of the original papers or exhibits filed herein, and not included in the transcript may, on motion of any of the parties hereto, and with leave of the Court

be produced at the hearing of the above entitled cause on appeal.

CHARLES L. FRAILEY,

*Of Counsel for the Barber*

*Asphalt Paving Company.*

JAS. FRANCIS SMITH,

*Of Counsel for D. C. Commissioners.*

E. H. THOMAS,

*Of Counsel.*

572 Supreme Court of the District of Columbia.

UNITED STATES OF AMERICA, *District of Columbia, ss:*

I, JOHN R. YOUNG, Clerk of the Supreme Court of the District of Columbia, hereby certify the foregoing pages, numbered from 1 to 571, inclusive, to be a true and correct transcript of the record as per directions of counsel herein filed, copy of which is made part of this transcript, in cause No. 23,774 IN EQUITY, wherein THE BARBER ASPHALT PAVING COMPANY, is Complainant; and HENRY B. F. MACFARLAND, ET ALS., are Defendants, as the same remains upon the files and of record in said Court.

In testimony whereof, I hereunto subscribe my name and affix the seal of said Court, at the City of Washington, in said District, this 21<sup>st</sup> day of September, A. D., 1906.

[Seal Supreme Court of the District of Columbia.]

JOHN R. YOUNG, *Clerk.*

573 In the Court of Appeals of the District of Columbia.

No. 1728.

MACFARLAND, ROBERTS, ET AL.,

*vs.*

THE BARBER ASPHALT PAVING COMPANY

*Stipulation.*

It is hereby stipulated by and between counsel for the respective parties hereto that the Clerk shall omit from the printed record herein the following portions of the Transcript of the Record filed herein, namely:—

Omit pages 299 to 312 inclusive.

Of the contract specifications appearing on pages 316 to 336 of the Transcript, omit paragraphs 1, 2, 3, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 23, 24, 25, 26, 28, 29, 30, 31, 32, 33, 34, 35, 37, 38, 39, 40, 41, 42, 43, 44.

Of the general stipulations appearing on pages 337 to 342 of

the Transcript omit the following paragraphs:—2, 3, 4, 5, 6, 8, 10, 11, 13, 14, 15, 17.

Omit pages 343 to 348 inclusive of the Transcript.

IT IS FURTHER STIPULATED that the several contract specifications and general stipulations, to be included in the printed record herein, which appear to refer to either one of the two contracts involved in the above entitled cause shall be considered as applying to both of them, except paragraph No. 5 of the contract specifications.

E. H. THOMAS,  
JAS. FRANCES SMITH,  
*Sol's for Appellants.*  
A. S. WORTHINGTON,  
*Solicitor for Appellee.*

(Endorsed:) No. 1728. Macfarland, Roberts *et al.*, vs. The Barber Asphalt Paving Company. Stipulation to reduce printed record. Court of Appeals, District of Columbia, Filed Oct. 25, 1906. Henry W. Hodges, Clerk.

Endorsed on cover: District of Columbia supreme court. No. 1728. Henry B. F. Macfarland, *et al.*, appellants, vs. The Barber Asphalt Paving Co. Court of Appeals, District of Columbia. Filed Sept. 28, 1906. Henry W. Hodges, clerk.





MAR 26 1907

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*Henry W. Hodges,*  
*clerk.*

# Court of Appeals, District of Columbia.

JANUARY TERM, 1907.

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No. 1728.

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HENRY B. F. MACFARLAND, HENRY L. WEST, AND  
JOHN BIDDLE, COMMISSIONERS OF THE DISTRICT OF  
COLUMBIA, AND CHARLES H. TREAT, TREASURER OF  
THE UNITED STATES, APPELLANTS,

v.

BARBER ASPHALT PAVING COMPANY, APPELLEE.

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## SUPPLEMENTAL BRIEF FOR APPELLEE.

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A. S. WORTHINGTON,  
CHARLES L. FRAILEY,  
*Solicitors for Appellee.*



# Court of Appeals, District of Columbia

**JANUARY TERM, 1907.**

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**No. 1728.**

---

HENRY B. F. MACFARLAND, HENRY L. WEST, AND  
JOHN BIDDLE, COMMISSIONERS OF THE DISTRICT OF  
COLUMBIA, AND CHARLES H. TREAT, TREASURER OF  
THE UNITED STATES, APPELLANTS,

*v.*

BARBER ASPHALT PAVING COMPANY, APPELLEE.

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## **SUPPLEMENTAL BRIEF FOR APPELLEE.**

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Pursuant to leave of the court obtained during the course of the oral argument in the above-entitled cause, counsel submit the following supplemental brief in support of the points relied on by the appellee concerning the construction of the contracts in controversy, more particularly adverted to by the court in its interrogations to counsel.

### **I.**

#### **The Guarantee Clause.**

For the purposes of argument, the guarantee clause, found on page 184 of the record, may be divided into three sections, found in the three paragraphs of that clause as printed in the record. It is the purpose of this argument to show:

1. That the first section or paragraph of the guarantee does not amount to an agreement or covenant to repair, such as binds the appellee to make repairs, no matter what the cause making such repairs necessary might be; but is merely a *warranty* that the pavement laid by the appellee under the contract is according to the plans and specifications required, and is of the material and workmanship demanded by the contract, and that the appellee agrees only to keep the same in such condition by remedying any defects in such material, or in the work of laying the pavement, which may appear during the five years.

2. That the second section or paragraph referred to has no application to this cause, for two reasons:

*a.* Because there is no evidence in the case whatever that the Commissioners of the District of Columbia made any demand upon the Barber Company to remove any defective pavements and relay the same with new material of approved quality and in accordance with the specifications because the pavement was inferior to the best laid in the District prior to July 1, 1886.

*b.* Because there is no evidence in the case sufficient to justify a finding of any court that the pavement in question proved inferior to the best laid in the District prior to July 1, 1886.

3. That the third section or paragraph has no application to this case, inasmuch as it refers solely to imperfections, depressions, &c., in the pavement due to defective workmanship or like causes, which is not the case here; and for a further reason, that there is no evidence in the case whatever that the Engineer Commissioner made any direction whatever with reference to any of the imperfections, &c., described in this section of the guarantee clause; and, again, for the

reason that the District of Columbia can hardly make the point that this section applies to the case, when they at the same time say that the pavement is still under guarantee, and the clause under the present discussion is applicable according to its own language only "on the expiration of the guarantee for maintenance."

1. The language of the first clause of section 36, at the top of page 184 of the record, is that all pavements and other work will be guaranteed and kept in repair by the contractor without cost to the District for a period of five years, &c. It is perfectly apparent from this language, it is respectfully submitted, that this is not an independent covenant for the sole purpose of keeping in repair a street after the contract has been entered into to pave the street. On the contrary, the very words, "guarantee and keep in repair," must mean that the quality of the materials used and the workmanship employed in putting down the pavement are of such a durable nature as to be in good condition at the expiration of five years from the date of the completion of the laying of the pavement. This is guaranteed by the contractor, and the words "keep in repair," in connection with the guarantee, mean simply that, in order to accomplish this end, the contractor will, at his own cost, make repairs from time to time in the street wherever such are necessary to remedy such defects and imperfections as might appear from the character of the materials used, &c. That such a clause as this can be construed as an absolute contract to keep the pavement in repair, no matter what cause might make such repairs necessary, would be, we submit, to stretch the meaning of this guaranty beyond what it was ever intended to mean, and beyond what the law, as laid down by decisions, construes it to mean. Whatever may have been the consideration of the contract, and whether that, as a matter of fact, took into view the making of repairs, it can only be said that the District by its contract agreed to pay a certain sum for the laying

of the pavement, and that that pavement should be a guaranteed pavement—not only guaranteed to last for five years, but warranted, by the fact that the contractor must make repairs on it, against imperfections due to the material used or the work performed in laying the pavement. In other words, what the District contracted for, and agreed to pay for, was such a pavement as would not need any repairs for five years, and if it did need any, the contractor should make them. It may have paid more for such a pavement, but in the utter absence of any evidence that the price named in the contract so far exceeded the price of an ordinary guaranteed pavement as to have included compensation for an independent contract to repair, the court, we submit, cannot stretch this guaranty into such independent covenant, into insurance; and the testimony of Mr. Richardson (p. 61), mentioned by counsel for appellants, is only that a *guarantee* was paid for, not an independent covenant to repair. To construe this clause to mean that if the pavement should be destroyed by fire, by explosion, by earthquake or by any cause whatsoever, then in such case the Barber Company should, at its own cost, repair or reconstruct such pavement, would, we submit, render bids for such work as this prohibitory and contracts of this kind confiscatory. Decisions of the highest courts of many of the states, entitled to great respect, bear out the construction contended for by the appellee, that such a clause is a mere warranty and not an agreement to repair.

A case exactly in point arose in the Supreme Court of the State of Missouri, in which the Barber Asphalt Paving Company was a party. The case arose from the question as to whether a contract of a paving company with the city of St. Joseph, containing a five-year guaranty clause, thereby put on the adjacent property-owners any part of the cost of repairing, assuming that the city was bound for repairs generally on the street. It was held that it did not, on the

ground that such guaranty clause was merely a stipulation for a sound pavement.

The guaranty clause referred to in the contract with the city was as follows:

*"Guarantee.*—The contractor guarantees the pavement constructed under these specifications for five years. Agrees to keep the same in repair during the period of said guarantee, and at the end of said period of five years to turn said pavement over to the city in good order and condition."

There was also in this guarantee clause a proposition that the contractor in his bid should propose an agreement to keep the pavement in repair for an additional five years; and repairs to streets made necessary by constructing of sewers, laying of pipes, &c., and other disturbance of the pavement by parties acting under permits issued by the city should be paid by the contractor and the cost of such repairs paid back to him at a certain price, &c. Of course, the clause under consideration applicable to the case at bar is the guarantee for the five years subsequent to the completion of the pavement.

The court, in construing this guarantee clause, says:

"The 'guarantee' of the pavement for five years, as laid by the plaintiff, involves no extra charge against the adjoining property further than would be justly payable for a lasting pavement. The term for keeping the agreed work in repair, free of cost, is not longer than the reasonable period such a work should last, if properly done at the outset. It certainly is proper for the city to require of the contractor for such improvements a sound and durable piece of finished work. The agreement to maintain the work free of cost for five years is (so far as this record shows) nothing more than a guaranty that the work shall be of that character. \* \* \*

"The paramount issue is upon the construction of the contract, taken as a whole. Does it mean to provide that the paving company shall keep the entire street in repair for five years, or does it mean to provide that the company shall simply maintain in good order for that period the street as



plaintiff agreed it should be made? We think the latter its true meaning. The city had the right to determine whether the thoroughfare should be improved with macadam, gravel, asphaltum, granite or other material. It had the right to put down a pavement good enough to last at least five years and to charge its cost against the adjacent property. \* \* \* Such a 'guarantee' (as it is aptly termed in the contract) is a prudent and businesslike mode of securing what the city has a right to demand in respect of the quality of work desired. Such an agreement does not of itself necessarily imply any unlawful increase of the first cost of a well-constructed street. Such a street is what the contract before us is designed to secure. The guaranty is entirely different in principle from an agreement to keep the whole street in repair for a term of years, irrespective of the causes which might necessitate repairs."

*Barber Asphalt Paving Co. v. Ullman*, 137 Missouri, 543, 550, 551, 566 to 568.

In *City of Louisville v. Henderson*, 5 Bush., Kentucky, 515, 519, 521, a case which also involved the question of assessments, the contractor was required to keep his work in repair for six months after its reception by the general council. This was by a section of the city ordinance, which section formed a part of all contracts with the city for street paving. Says the court (page 519):

"It is true that by section 6 of article 7 of the city charter, it is provided that the city shall keep in repair any street which it had caused to be improved at the cost of lot-owners; and the chancellor held that the stipulation in the contract that the contractor should keep the street in repair for six months after his work was accepted by the council was a violation of this section and article of the charter, and therefore discharged the appellee Henderson from liability for the cost of the improvement fronting on his property. That stipulation, as we understand it, means that the contractor is only bound to make good such portions of his work as might prove to be defectively done, and which repairs would not be necessary and never required when he has completed his work according to his contract.

"That during the space of six months defective work will,

by the use of the street, be developed, and where such developments are made the contractor shall repair. This construction seems to be the proper one, from the terms used, and from the subject-matter to which they relate and the connection in which the stipulation is found. The subject is the improvement of streets; the thing stipulated is that the work—his work—on the street, he will keep in repair—not of injuries to the street which may result from other causes than defects in his work.”

In *Cole v. The People*, 161 Illinois, 16, 19, 20, which was also a case involving special assessments, the validity of the city ordinance was attacked because that ordinance not only provided for the paving of the street, but also for its maintenance and the repairing of it for a period of five years, &c. The provision referred to was as follows:

“The contractors shall furnish a bond, satisfactory to the Commissioner of Public Works, for the sum of fifteen thousand dollars (\$15,000.00) as a guarantee that said contractor will faithfully perform the work in accordance with the terms of its agreement, and also that he will, without further compensation, keep in continuous good repair all pavements laid under this contract for a period of five years from September 1, 1894. In case the contractor at any time shall fail to keep said pavements in a condition satisfactory to the Commissioner of Public Works during said period, the said commissioner may employ skilled workmen to make such repairs and collect the cost from said contractor or his bondsmen.”

The court, after stating a certain other point in regard to the ordinance not applicable here, says:

“In the second place, the provision complained of here quoted above is merely a warranty or guaranty of the fitness of the material for the uses intended. There is nothing in the provision to indicate that any of the money raised by special taxation is to be applied to the purpose of maintaining the pavement and keeping it in repair. As a guarantee that the pavement is properly constructed, the contractor makes himself liable by a bond to keep it in repair for a certain time. It is not otherwise than if the city had inserted

a clause in the agreement that it would retain a certain per cent. of the contract price of the work for the purpose of repairing any defects in the pavement that might reveal themselves within the period specified. We do not regard it as improper that the city should require some such guarantee as that set out in this agreement."

In the case of *Wilson v. The City of Trenton*, 60 New Jersey Law, pages 394, 395, and 396, a case also involving special assessments, the contract for paving a certain avenue in the city of Trenton provided that the contractor should guarantee the endurance of the pavement for a period of not less than five years from the date of its completion and acceptance by the city, and should maintain the pavement in good condition at the finished grade of the street at his own cost and expense during said period, and that upon his failure to do so the city was authorized to make such repairs as might become necessary and deduct the cost thereof from such moneys as it might have in hand belonging to the contractor. In construing this clause the court says, referring to cases in other courts:

"In these cases the provision for maintaining or repairing was treated as an independent one, while in the one under consideration, it is merely an appendant to the guaranty of the durability of the pavement. What the contractor, in effect, says is this: The contractor guarantees to put down a pavement which shall remain in good condition for at least five years; if it gets out of order during that period, the contractor must restore it at his own expense; and, if he fails to do so, the city may make repairs and retain the cost thereof out of the contract price. . It does not require him to make all repairs which shall become necessary, during the period named, but only those which arise from lack of durability of the pavement. \* \* \*

"It seems to me that the provision in the contract relating to the maintenance of the pavement is a mere method of enforcing the guaranty of the contractor by a speedier and less expensive method than by suit, and that it does not have the effect of imposing upon abutting owners any burden other

than that of having the pavement well constructed at the outset."

See, also, *Allen v. City of Davenport*, 107 Iowa, pages 90, 101.

In connection with the third section of the guaranty clause contained in the contract in the case at bar, the following case is interesting. This was also an assessment case, and the specifications in the contract with reference to laying gutter, curb, &c., provided that the contractor should, without any extra compensation, keep in repair the curb and gutter for a period of two years after its final acceptance, by making good any settlement or derangement of lines or grades of curbs, gutters, and crossings, and by replacing defective materials or work in grades, gutters, crossings, and pavements. Says the court:

"This specification is no more than a guaranty that the work has been properly done, and the contractor makes the agreement to repair if defective. In estimating the cost of the improvements, the Commissioners did not take into consideration any cost of repairing, and this requirement was reasonable and proper."

Citing *Cole v. The People*, 161 Illinois, *supra*.

*Latham v. Village of Wilmette*, 168 Illinois, 153, 161.

2. The second clause of the guarantee of section 36 cannot possibly apply to this case. It does not appear anywhere in the record that the Commissioners made any demand upon the Barber Company to put the pavement in shape, except in the pleadings, where, in the original bill of complaint, it is alleged that, as to the M Street pavement, the Commissioners called upon the complainant to *repair* the same, and at the same time informed the complainant that if such *repairs* were not promptly made by the complainant the work would be undertaken by the District and the cost thereof charged to the complainant (3).

The District Commissioners in their answer admit this fact (12).

In the amended and supplemental bill the same allegation is made with reference to the second contract (27), which is admitted in the answer of the Commissioners (32).

We submit that, there being no evidence whatever in the record that at any time the Commissioners made any demand upon the Barber Company to remove the pavement because it was defective, and to relay the same with new material of approved quality, in accordance with the specifications of the contract, *because the pavement proved inferior to the best laid in the District prior to July 1, 1886*, the demand alleged in the bill of complaint by the Commissioners upon the Barber Company to make good the pavement could not possibly have been made under this second clause of section 36. Not only was there no verbal evidence of any such demand by the Commissioners for the reason above stated, or of the decision of the Engineer Commissioner or any of his subordinates of any supposed inferiority of the pavement, but the appellants produced no report, no file, no official document of any nature whatsoever showing any such demand by the Commissioners or decision by the Engineer Commissioner or any of his subordinates.

This being the case, any question as to what extent and how far any decision of the Engineer Commissioner of the inferiority of the pavement laid on M street is to govern the rights of the appellee is out of the case. And, further, it may be said that no claim was made in the pleadings or in the answer of the Commissioners that this pavement was inferior to any pavement laid prior to July 1, 1886, or in what respect any such inferiority existed, and nowhere does it appear, in pleadings or evidence, that the Barber Company was ever notified that the pavement proved inferior, either by the Commissioners or the Engineer Commissioner. So far as the record in this case is concerned on this question of inferiority, it nowhere appears that in any respect the pave-

ment was not in all particulars in accordance with the plans and specifications of the contract.

Mr. Richards, who had been superintendent of the Barber Company seventeen years prior to testifying, states that the pavement was not inferior to those that had been laid in the District prior to July 1, 1886. Let us, for the sake of argument, say that is his opinion (114).

Mr. Dow testifies that such pavement did prove inferior, although in what respect he did not say (200), and let us suppose that that is his opinion. The *facts* show that this pavement was the same in material, workmanship, &c., as the other twenty-odd pavements laid under these contracts, and that they were all accepted by the District, and there is not one scintilla of evidence between the covers of the record to show either that the pavement was inferior to those laid prior to 1886 or how or in what respect such inferiority existed. Indeed, if opinions are to be taken, another opinion is in favor of the superiority of the pavement, as Mr. Richardson testifies, "in fact I believe I stated, and it has been quoted that I said it (referring to the mixture and the work, &c.) was better work than was usually done in the District."

For the foregoing reasons, therefore, it is perfectly apparent that the demand made by the Commissioners, as alleged in the pleadings, being a simple demand to repair the pavement, was a call upon the appellee under the first section of the guaranty to repair the pavement which they had warranted and guaranteed, and, of course, the defense under that clause showed and has been urged in the principal brief for the appellee that the necessity for such repairs was not due by reason of any failure of the pavement to retain its standard of excellence in accordance with the plans and specifications of the contract, but was due to causes foreign thereto and over which the Barber Company had no control and for which it was not responsible.

Little may be said, we think, as to the third clause of section 36, because that section evidently, from its language, refers to such small matters in the way of imperfections, depressions, &c., as necessarily result from the ordinary wear and tear of the street, and no evidence was offered of any direction of the Engineer Commissioner making any direction in such matters under this clause, and we do not desire to take up the time of the court with any discussion of this third clause of the guaranty.

In concluding the discussion of this guaranty section, No. 36, and by way of illustration, counsel suggest that where a contractor of a public building agrees to keep it in repair for one year after its completion, as has been the case in building contracts with the United States and the District, it could not be said that such a clause as the one under consideration would require the contractor to either partially or entirely rebuild such a building within the guaranteed year, should an earthquake tumble it down, a fire burn it up, or an explosion blow it to atoms. Certainly, for the contract price, no contractor would ever suppose he was, nor could he be held to be, an insurer of the work he has done during the guaranteed period.

A passing reference to the authorities on this point cited by appellant's counsel in their brief may not be out of place. All but two of them refer to contracts to build, and do not mention repairs or guarantees, and are therefore inapplicable to this discussion. Of these two cases, one, *Mockrow v. Hogan*, 58 N. Y., 635 (Appellant's Brief, p. 76) treats of an independent covenant to repair without exception, contained in a lease, and is of course not in point. The other, *Portland v. Portland Bituminous Pav. Co.*, 44 L. R. A., 527 (Appellant's Brief, p. 73), shows that the paving contractor gave an additional bond, not as a guarantee, but to keep the street in repair, thereby obligating himself in an independent stipulation to repair—*i. e.*, do that which the city of Portland was required to do—a very different case from the

one at bar. In fact, it will, we think, be found that in every case in which the doctrine contended for by the appellants may appear to be supported an independent agreement to repair will be found to exist, and not a mere guaranty; and we respectfully submit that the true and reasonable construction is found in the cases hereinabove cited.

## II.

### **Section 27, with Reference to the Examination of the Site for the Pavement.**

In discussing this section it is well by way of preface to observe that the evidence shows that the bidder not only examined the site of the pavement, but found no escape or evidence of illuminating gas, either at that time or when the grading and other preparatory work was being done (114).

The language of this clause, No. 27, it is respectfully submitted, cannot be construed into a policy of insurance against accidents and causes of destruction of the pavement from any cause whatsoever. Surely such a construction would drive bidders from the field, and no contractor would dare to make any proposal for the construction of any public work. This clause certainly can mean no more than that either in the laying of the pavement or the keeping of it in good order thereafter no allowance will be made for unusual difficulties arising because of the conditions of the soil, the weight of traffic over the pavements, or any other unusual or peculiar difficulty which could or might be guarded against by the contractor upon an examination by him of the site upon which he is to perform his work. With this meaning attached to the paragraph under discussion, the reason for its existence is found; but if the contention of the learned counsel for the District is correct and no allowance is to be made for any difficulties which may arise, no matter



from what cause, then the words inviting the bidder to examine the site are superfluous, for whether or not he examines the site, or whether or not upon such examination of the site anything is revealed, he is to be held accountable, nevertheless, for any ruination of the pavement arising from any cause which the most thorough and exhaustive examination of the site would fail to disclose.

In any event, it is respectfully submitted that to construe clause No. 27 into meaning that the contractor, although upon examination of the site of his work and finding nothing there to indicate any difficulty usual or unusual, is to be required to replace the pavement or repair the same when disintegrated, destroyed, blown up, washed away, or otherwise annihilated from any cause whatsoever, for which he is not responsible, and of which he did not and could not be expected to have any knowledge, is to stretch the meaning of the clause beyond all rational and reasonable interpretation.

In conclusion, it is respectfully submitted that the decree of the court below was right and should be affirmed.

A. S. WORTHINGTON,  
CHARLES L. FRAILEY,  
*Solicitors for Appellee.*

